TIME

THE COVID WINTER

VACCINES ARE COMING.
SO ARE THE HARDEST MONTHS

by
JAMIE DUCHARME

TIME
VOL. 196, NOS. 20–21 | 2020

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Cars line up at a Houston Food Bank distribution at George Bush Intercontinental Airport on Nov. 17

Photograph by Meridith Kohut for TIME

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Photographs by Jessica Pettway for TIME

Photo-illustration by Sean Freeman and Eve Steben for TIME

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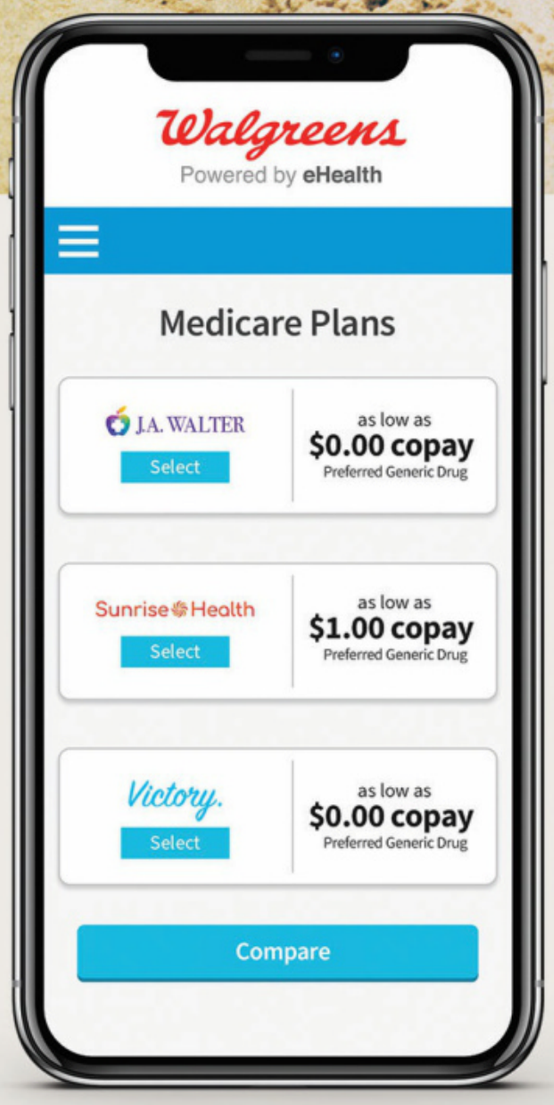
Walgreens



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Conversation

WHAT YOU SAID ABOUT ...

'A TIME TO HEAL' Readers agreed with the cover line of the Nov. 23 issue but disagreed about what exactly America needed to heal from. Mahmood Hassan of Phoenix pointed a finger at President Trump, who he argued has "never cared for anything except what matters for himself," while Mary Lou St. Cyr of Mesa, Ariz., criticized Democrats for spending "the past four years undermining and fighting anything President Trump tried to do."

Victoria J. Heil of Chandler, Ariz., suggested that the close Electoral College results were due to the perceived "authenticity" of Trump's not hiding what he's thinking—but others worried that now that Joe Biden has won, the President was not thinking of the country. "The longer Trump delays conceding the election, the more time he has to convince himself that he should take drastic measures to remain in power," warned Austin Kuder of Seven Hills, Ohio. "I believe the Republicans are, in fact, terrified ... of what Trump might do," added Lee Rudnicki of Beverly Hills, Calif.

Pat Sheffels of Bellevue, Wash., recalled one way a nation divided after the Vietnam War began the healing process, citing the Vietnam Veterans Memorial in Washington, D.C., and its poignant list of the war's dead. "We need a memorial for those lost to COVID-19," Sheffels continued. "Something that will help us remember that we are all Americans, all human, all tainted by this pandemic, and all need to heal in more ways than just our physical bodies."

'[Kamala Harris] can be the change in American policy and culture that is so badly needed.'

RYAN DOWSE, Lancaster, N.H.

'We need to speak up and fight harder for the humane values that we believe in.'

STEWART B. EPSTEIN, Rochester, N.Y.

PLAYTIME The TIME for Kids gift guide, a curated selection of 2020's best toys, features a mix of updated classics—like an Etch A Sketch and a "Showdown" edition of Uno—and new games that help introduce children to current events, from Playmobil's Large Hospital play set to the Monopoly House Divided edition, in which players build a presidential campaign instead of hotels. Browse the list at **time.com/best-toys-2020**

PERSON OF THE YEAR While TIME's editors decide the Person of the Year, there's still time to add your voice by voting in the 2020 Person of the Year reader poll at **time.com/poy-poll.** TIME will announce its choice on Dec. 10 on **time.com** alongside a special prime-time telecast on NBC at 10 p.m. E.T./P.T.

bonus TIME politics

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PROGRAMMING NOTE ▸ This is a special double issue that will be on sale for two weeks. The next issue of TIME will be published on Dec. 3 and available on newsstands on Dec. 4.

SETTING THE RECORD STRAIGHT ▸ In some copies of the Nov. 16 issue, the state of Arizona was colored incorrectly on an electoral map in "The Big Event, by the Numbers." The state, which Joe Biden carried, should have been blue.

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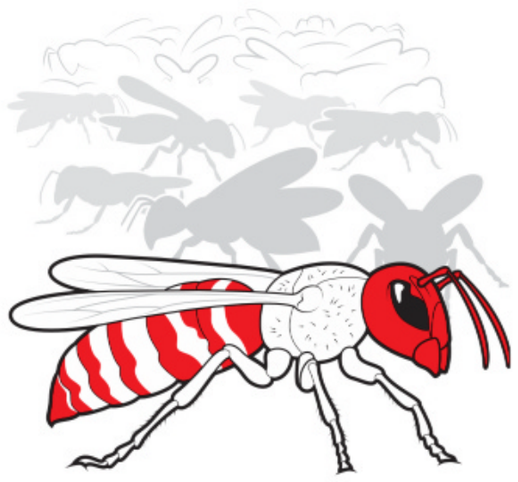
‘THIS ISN’T A GAME.’

MICHELLE OBAMA,
urging a “smooth transition of power” from the Trump Administration to that of President-elect Joe Biden, in a statement shared on Instagram on Nov. 16

‘Not everybody gets the chance to read one’s obituary while still alive.’

ABDOULAYE WADE,
President of Senegal from 2000 to 2012, in a Facebook post on Nov. 16, after a French news site accidentally posted his obituary, along with those prewritten for around 100 other famous figures who are, in fact, still alive



76

Number of queens—each capable of forming her own colony—found in a single “murder hornet” nest destroyed in October in Washington State, confirmed by scientists on Nov. 10

‘I’m not going to be bullied into not following reputable scientists and medical professionals.’

GRETCHEN WHITMER,
governor of Michigan, in an interview with CNN on Nov. 15, after Trump adviser Dr. Scott Atlas suggested that Michiganders “rise up” against new coronavirus restrictions

‘She will not perform again if her father is in charge of her career.’

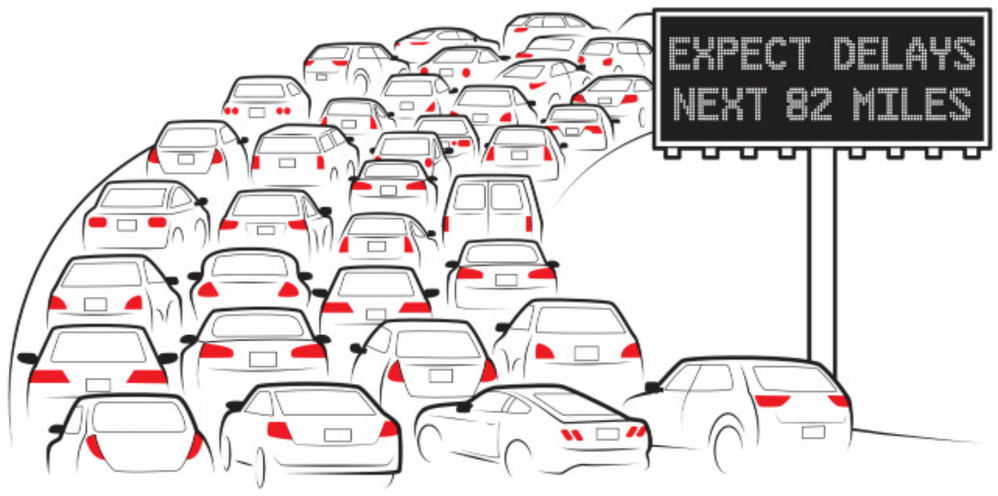
SAMUEL D. INGHAM III,
an attorney for Britney Spears, speaking in court on Nov. 10 after a Los Angeles judge declined an application from the singer to remove her father James Spears from a conservatorship she has long been under

‘The reviewer spent time in jail as a result.’

TRIPADVISOR,
in a Nov. 11 update to its listing for a hotel in Thailand that had an American guest arrested after he posted negative reviews

47.8 million

Number of Americans the American Automobile Association expects will travel by car over Thanksgiving, down from last year’s 49.9 million



GOOD NEWS *of the week*

The first LGBTQ+-owned and -run housing complex in New York City opened on Nov. 13; its owner, Ceyenne Doroshow, said the opening marks a “beginning of creating Black trans equity”

ILLUSTRATIONS BY BROWN BIRD DESIGN FOR TIME

SOURCES: THE NEW YORK TIMES; THE GUARDIAN; CNN; BBC NEWS; ROLLING STONE; QNS

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The Brief

GEORGIA REACH
Jon Ossoff and the Rev. Raphael Warnock, right, hold the Democrats' hopes for snagging the U.S. Senate

INSIDE

HURRICANE SEASON HAMMERS CENTRAL AMERICA

CONTACT-TRACING-APP FAILS MAR COVID-19 RESPONSE

A GROUNDBREAKING SPACEX LAUNCH

PHOTOGRAPH BY ELIJAH NOUVELAGE

The Brief is reported by Madeleine Carlisle, Leslie Dickstein, Alejandro de la Garza, Suyin Haynes, Ciara Nugent, Billy Perrigo, Madeline Roache, Abby Vesoulis and Olivia B. Waxman

POLITICS

The overtime election

By Philip Elliott

IN NORMAL TIMES, THE STATE OF GEORGIA IS HOME to one of the 10 largest economies in the country. While it trails giants like New York and California, its economic might still registers at least twice as large as nine of its Southern neighbors'. And if political analysts are right, the Peach State is about to get a sweet fourth-quarter injection of political money that could boost its gross domestic product by as much as a billion dollars.

That's because before the weary nation can collectively exhale after a presidential campaign that burned through billions, there's one more election day on the calendar that will be critical in determining what the next few years in Washington look like. The fight for control of the U.S. Senate has come down to a pair of races in Georgia that yielded no clear winners when voting ended on Nov. 3. Because no candidate in either race topped 50% of the vote, state law requires the top two finishers from each contest to face each other in runoffs scheduled for Jan. 5, 2021.

With Republicans already guaranteed 50 seats in the Senate, Democrats need to prevail in both Georgia races to afford Vice President–elect Kamala Harris the tie-breaking vote in the upper chamber. With those twin wins, it would be Joe Biden's Washington when he becomes President on Jan. 20. Without them, he would become the first incoming President since George H.W. Bush in 1989 not to have members of his party controlling both chambers of Congress. It would be a true reflection of a divided nation, and not an easy place to govern.

Unsurprisingly, neither GOP nor Democratic donors are willing to squander this final chance to shape the Capitol for the next two years, and there is a lot of cash pouring in. While the Nov. 3 election had every special-interest group, lobby and do-gooder spread thin from Key West, Fla., to Wasilla, Ala., the races in Georgia now become a superconcentrated exercise in political spending.

So far, parties have thrown $165 million at federal races in the state, according to the Center for Responsive Politics. That could shape up to be chump change: by some estimates, as much as a billion dollars could be infused into Georgia by way of paid media, polling and boots on the ground over the next eight weeks. "This is going to be the most expensive Senate runoff in the history of this country," says Georgia-based Republican strategist Julianne Thompson.

'It's all on the line. All eyes in this country are in Georgia.'

KELLY LOEFFLER, incumbent GOP Senate candidate

The Georgia candidates' disparate identities underscore just how far apart the parties are when it comes to who they want in Washington. Incumbent Kelly Loeffler, the wealthiest member of the Senate, who took her seat earlier this year to fill the balance of Senator Johnny Isakson's term, is in a tight fight with the Democratic candidate, the Rev. Raphael Warnock, pastor at the Rev. Dr. Martin Luther King Jr.'s church in Atlanta. In the other race, former Reebok and Dollar General CEO and current Republican Senator David Perdue is battling documentary filmmaker Jon Ossoff, the Democrats' pick.

On Nov. 17, media executives Jeffrey Katzenberg and Byron Allen organized an online fundraiser with Warnock and Ossoff along with Stacey Abrams, whose grassroots organizing has received widespread praise in the party for her efforts to help register thousands of new voters who may have helped tip Georgia for Biden and may stem an expected falloff of voter interest in the second round of voting.

The day before, Senate Republicans tapped Karl Rove to lead a special fundraising arm to help rake in cash for Loeffler and Perdue. The involvement of the former political architect for George W. Bush is a clear signal that the GOP is going all in. On Nov. 13, the Republican National Committee also announced it was sending 600 staffers to the state, or one for every five staffers it had in the field nationally for the general election.

UNDER NORMAL CIRCUMSTANCES, Republicans would be feeling good about their prospects—runoffs in Georgia typically favor GOP candidates because Democrats typically don't return for Round 2. But Republicans know they could be in trouble. Not only is Biden leading the current presidential race count by a narrow 0.3 percentage points, according to the Associated Press, but Trump continues to drag the party brand down with swing voters who are watching him lash out and refuse to accept defeat.

Senate majority leader Mitch McConnell has hinted Trump might show up to fire up his supporters in the state before the vote, but so far the President remains in Washington to fight the results of his race and make false claims about the legitimacy of an election that the rest of the country—and his own government—agrees went off smoothly.

With or without an appearance from Trump, voters in Georgia will remain bombarded by the ads, the calls, the texts, the tweets and the visitors on their front stoops—action that will almost certainly be a real boon for the local economy. But you can't simply buy an election. Still, airwaves, hotels and social media feeds are about to get a second wind as the political circus rolls into town. You can balk at the stench it brings, but you can't scoff at what it does for the local vendors. A billion dollars—or even a meaningful fraction of that—doesn't land without a thud, after all. ◻

PREVIOUS PAGE: GETTY IMAGES; THESE PAGES: LOEFFLER: JOHN BAZEMORE—AP; PERU: RODRIGO ABD—AP

ANOTHER DAY, ANOTHER PRESIDENT Peru's Congress voted on Nov. 9 to impeach President Martín Vizcarra over corruption allegations. His replacement resigned after five days, following deaths among demonstrators who accused lawmakers—half of whom are themselves under investigation for graft—of a "parliamentary coup." The week's third President, Francisco Sagasti, took office on Nov. 17. Elections are slated for spring.

THE BULLETIN

Hurricane season is the latest climate threat facing Central America

FOR CENTRAL AMERICA, THIS YEAR'S storm season has been relentless. Already struggling under the economic toll of COVID-19, the developing region was battered by Hurricane Eta in early November and had little time to regroup before Hurricane Iota—the 30th named storm in a record-breaking hurricane season in the Atlantic—made landfall in Nicaragua on Nov. 16. "We in Central America aren't the ones who caused climate change," Honduran President Juan Orlando Hernández said as Iota hit. "But we are [among] the most affected.

DEVASTATION Eta killed some 150 people and forced 300,000 to flee their homes as floods and mudslides swallowed up entire towns across Guatemala, Honduras and beyond. The devastated communities faced strong winds and up to 30 in. of rain, and relief agencies say crowding in shelters, and cuts to water and power supplies, could trigger spikes in COVID-19 cases.

RECORD STORMS Neither Eta nor Iota has been as devastating as Central America's Hurricane Mitch, which killed 11,000 people in 1998. But we may now be entering an era when very deadly storms are no longer once-in-a-generation events. Meteorologists tracked more hurricanes in the Atlantic this season than ever before, and though no one storm can be blamed on climate change, scientists agree that a warming planet makes weather patterns more destructive.

CLIMATE AID The region's Presidents said they would work together to pressure richer countries to quickly release aid via regional development banks. "Countries that have recognized they are the main drivers of climate change have the money available," Hernández said, "but it's extremely difficult for us to access it." With the U.N.'s climate fund for developing countries drastically underfunded and extreme weather becoming more common, it's an argument we'll be hearing a lot. —CIARA NUGENT

NEWS TICKER

Trump okays drilling in Arctic wildlife refuge

On Nov. 16, the Trump Administration announced it would **begin the process of selling leases for roughly 1.5 million acres** of Alaska's Arctic National Wildlife Refuge to oil and gas companies for drilling, though it's unclear if sales can be completed before President-elect Joe Biden takes office.

Ethiopia faces humanitarian crisis

At least 27,000 people have fled Ethiopia for Sudan, the U.N. said on Nov. 17, **after the Ethiopian army attacked the restive Tigray region.** Some analysts fear the crisis in Ethiopia, with 112 million people belonging to many ethnic groups, could cause balkanization or a civil war.

Amazon launches pharmacy

E-commerce giant Amazon debuted its online pharmacy on Nov. 17 in **what could be a major disruption to the pharmaceutical sales industry.** Customers can now order and refill medications online, although they still need prescriptions, and have orders delivered directly to their home within days.

Sacred Stone of the Southwest is on the Brink of Extinction

Centuries ago, Persians, Tibetans and Mayans considered turquoise a gemstone of the heavens, believing the striking blue stones were sacred pieces of sky. Today, the rarest and most valuable turquoise is found in the American Southwest— but the future of the blue beauty is unclear.

On a recent trip to Tucson, we spoke with fourth generation turquoise traders who explained that less than five percent of turquoise mined worldwide can be set into jewelry and only about twenty mines in the Southwest supply gem-quality turquoise. Once a thriving industry, many Southwest mines have run dry and are now closed.

We found a limited supply of turquoise from Arizona and snatched it up for our ***Sedona Turquoise Collection***. Inspired by the work of those ancient craftsmen and designed to showcase the exceptional blue stone, each stabilized vibrant cabochon features a unique, one-of-a-kind matrix surrounded in Bali metalwork. You could drop over $1,200 on a turquoise pendant, or you could secure 26 carats of genuine Arizona turquoise for **just $99**.

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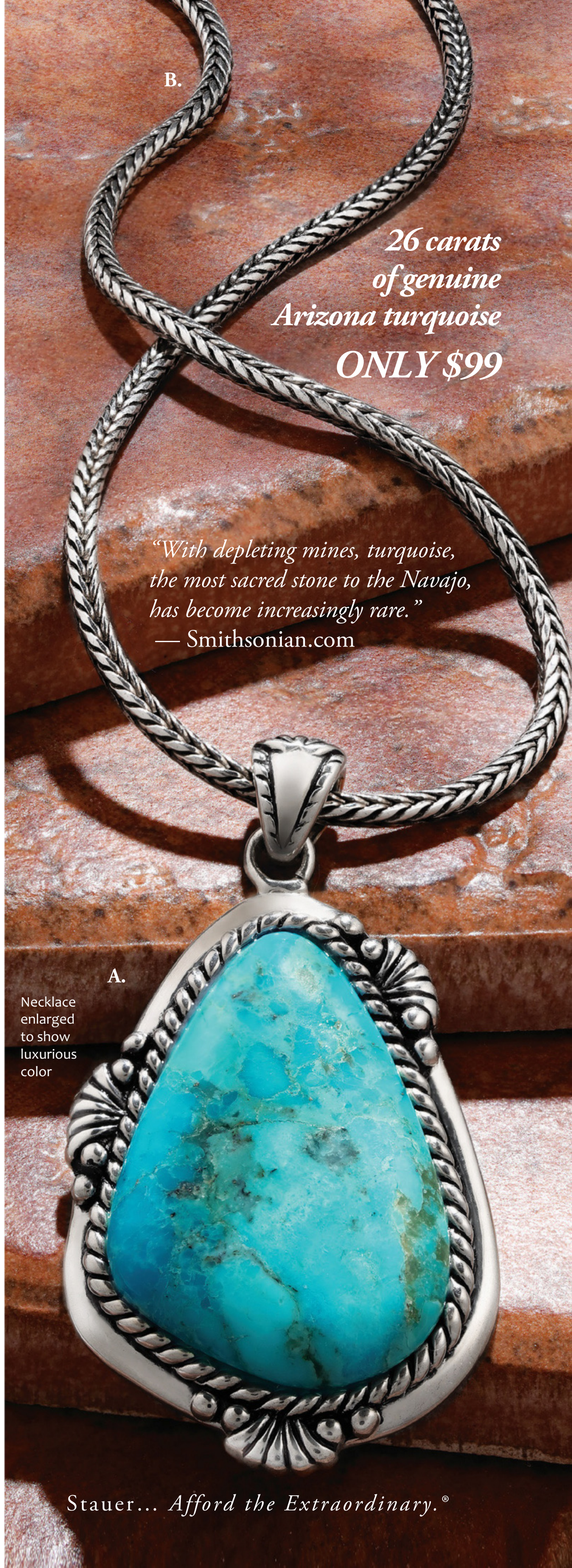


NEWS TICKER

U.K. Prime Minister's top adviser quits

Dominic Cummings, chief adviser to U.K. Prime Minister Boris Johnson, **resigned on Nov. 13 after infighting over access to the Prime Minister.** The departure of Cummings, the key architect of Johnson's most controversial policies, was welcomed by many of his party lawmakers.

Cybersecurity official fired after fact-checks

On Nov. 17, President Trump tweeted that he was firing Chris Krebs, **the Department of Homeland Security's cybersecurity head,** after Krebs challenged Trump's baseless claims of voter fraud. Krebs' department played a key role in ensuring election security.

15 Asia-Pacific countries sign trade deal

A major new trade deal was **signed Nov. 15 by 15 countries, including China, in the Asia-Pacific region** that account for 30% of global economy. The pact is designed to remove trade barriers. Some analysts say the Regional Comprehensive Economic Partnership (RCEP) will be a blow to U.S. economic clout.

GOOD QUESTION

Why haven't contact-tracing apps done more to stop COVID-19?

WHEN NEVADA'S DEPARTMENT OF HEALTH and human services launched one of the nation's first COVID-19 contact-tracing smartphone apps on Aug. 24, state authorities "strongly recommend[ed]" all 3 million-plus Nevadans make use of the mobile public-health software. But 2½ months later, only around 3% of the adult population has downloaded it, and it appears to have done little to slow a new surge of cases there.

States across the U.S. have launched similar apps, which proponents say can curb viral spread by notifying people when they have had close contact with someone who tests positive for COVID-19. Most are built by state governments, underpinned by a Bluetooth protocol released in May by Google and Apple. Six months later, apps using that protocol are available to the general public in only 14 states and Washington, D.C. And even in states that have rolled out contact-tracing apps, adoption—and impact—generally remains low. Why?

One issue has been a lack of federal assistance on coordination among states. App development has also been slowed by state health departments' lack of tech expertise. And, of course, whether an app takes a week or six months to build doesn't matter if people aren't using it—a problem in most states that have launched contact-tracing apps.

Alabama's app, for example, was downloaded only 125,000 times between its release in mid-August and late October, a figure equivalent to just over 3% of the state's adult population. Apps in North Carolina and Pennsylvania had likewise been downloaded by only 3% to 4% of their adult populations by the end of October, about a month after launching.

Sluggish adoption can be partly explained by unfounded fears that contact-tracing apps are tracking users' locations or other personal information. (In reality, some health experts have argued these apps keep information so private that they're actually less useful, in part because they don't collect data like location.) In some states, sparse use may also be linked to a lack of awareness. In Wyoming, for example, funds to advertise the state's app are scant, and adoption among residents has remained persistently low.

Even the highest adoption rates among U.S. states are far below those in countries like Ireland, where more than a third of the eligible population downloaded the government's contact-tracing app by early October. And despite the relative success of states like Delaware and Virginia, which have achieved 7.3% and 11.1% adoption, respectively, some experts are beginning to doubt the assumption that contact-tracing apps can help bring the spiraling COVID-19 outbreak under control in the U.S. "There's an ultimate question here …which is, Is this a great opportunity for software?" says Christian Sandvig, director of the Center for Ethics, Society, and Computing at the University of Michigan. "It may be that it is not." —ALEJANDRO DE LA GARZA

YVES HERMAN—REUTERS

WILDLIFE

Animal auctions

New Kim, a 2-year-old Belgian racing pigeon, **sold at auction for nearly $1.9 million** on Nov. 15 after a record-breaking bidding war. Here, more costly creatures. —*Madeleine Carlisle*

STEEP SHEEP
A trio of breeders pooled funds to purchase a 6-month-old Texel lamb with "all the best genetics," as British newspaper the *Guardian* reported, at an auction in Scotland in August. The price? Nearly $490,000.

BULL MARKET
Charles Herbster, chairman of President Trump's agriculture and rural advisory committee, paid over $1.5 million for a year-old Angus bull at a North Dakota auction in 2019, nearly doubling the previous world record for a single bull sale.

FANCY FISH
The most expensive koi carp ever sold fetched $1.8 million at an auction in 2018 after being judged Grand Champion at the All Japan Nishikigoi Show, a renowned koi competition, the year before.

Milestones

DIED
Bahrain's Prime Minister **Sheikh Khalifa bin Salman al-Khalifa,** on Nov. 11 at 84. Al-Khalifa had been in office since the island nation gained independence in 1971.

> **Lucille Bridges,** mother of civil rights icon Ruby Bridges, who famously desegregated her formerly all-white New Orleans school in 1960, on Nov. 10 at 86.

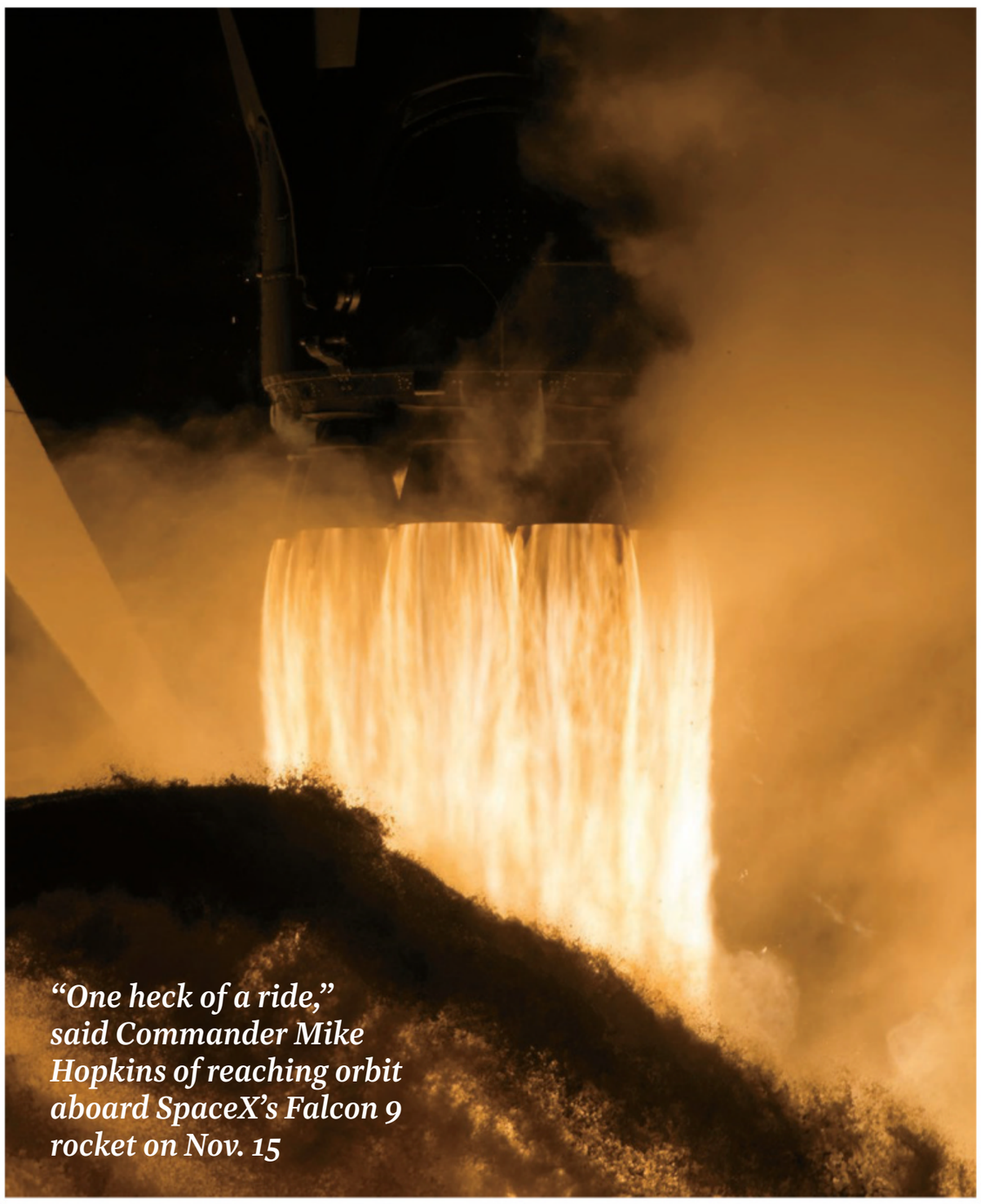
ELECTED
Maia Sandu, defeating a Vladimir Putin–backed incumbent to become Moldova's first female President on Nov. 16.

FILED
More than 92,000 sexual-abuse claims against the Boy Scouts of America, ahead of a Nov. 16 deadline. The group said it is "moved by the bravery" of those coming forward.

WON
The 2020 Masters Tournament, by golfer Dustin Johnson, on Nov. 15, with a record-breaking final score of 20 under par over 72 holes.

APOLOGIZED
The **Philadelphia city council,** in a Nov. 12 statement, for a 1985 incident in which police dropped a bomb on a house containing members of a militant Black liberation group, killing six adults and five children.

DEBUTED
Musician **Harry Styles,** on U.S. *Vogue*'s December cover, as the first solo male cover star in the magazine's 128-year history.



"One heck of a ride," said Commander Mike Hopkins of reaching orbit aboard SpaceX's Falcon 9 rocket on Nov. 15

ROCKET: JOEL KOWSKY—NASA/AFP/GETTY IMAGES; NG: JOSEPH GUZY—MIAMI MARLINS/AP

LAUNCHED

SpaceX's taxi to the ISS

A rocket's historic voyage

ON NOV. 15, SPACEX'S FALCON 9 ROCKET LIFTED OFF FROM Cape Canaveral for its first fully operational mission—54 years, to the day, after U.S. astronauts Jim Lovell and Buzz Aldrin splashed down in the Atlantic Ocean northeast of Turks and Caicos after a nearly four-day, 59-orbit mission in their Gemini 12 spacecraft. Their safe landing served as the perfect capstone to the Gemini program, a series of 10 flights viewed as essential dress rehearsals for getting astronauts to and from the moon.

But the success of the Gemini program was as much about hardware as it was about exploration. Those 10 flights, undertaken over the course of 20 months (or factored out to one crewed mission every eight weeks), sent astronauts into space with a regularity unimaginable just a few years earlier.

SpaceX is aiming to achieve a similar gas-up-and-go capability—and in some ways it already has, with more than 100 launches in its various fleet of rockets since 2008. But only two so far have been crewed: the current four-person mission, which successfully docked at the International Space Station (ISS) a day later, and a first, experimental one, which carried two astronauts to the ISS back in May. Because space-station crews stay aloft for six months at a time, there's no need for the company to match Gemini's pace. But with crew members' lives on the line, it is very much aiming for the same reliability. —JEFFREY KLUGER

HIRED

Kim Ng

MLB's first female general manager

HAVING BEEN PASSED OVER for so many jobs despite her wealth of experience, Kim Ng remembers feeling a weight lift off one shoulder when the Miami Marlins named her the first female general manager in a major North American men's pro sports league on Nov. 13. (She's also baseball's first East Asian–American GM.) "Half an hour later," Ng added during an introductory press conference, "I realized it had just been transferred to [the other] shoulder." Ng knows her performance could determine whether more doors open for women working in the clubby confines of men's sports. "You're bearing the torch for so many," said Ng, 52. "That is a big responsibility. But I take it on."

Ng became the youngest assistant GM in baseball when the New York Yankees hired her, at 29, in 1998. She won three World Series with the team, then worked as assistant GM for the L.A. Dodgers from 2002 to 2011 before joining Major League Baseball's front office as a top executive. "There's an adage: You can't be it if you can't see it," said Ng. "Now you can see it." —SEAN GREGORY

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Under the sea, filmmaker **Craig Foster** found a deep connection to nature and a special octopus

By Aryn Baker

THE DENSE KELP FOREST OFF THE SOUTHERN tip of South Africa is home to some of the earth's most diverse sea life, including sharks, rays and, once upon a time, a common octopus that has just had an uncommon run as the star of the Netflix documentary *My Octopus Teacher.*

Her onetime den lies a couple of dozen feet off the coast of Cape Town suburb Simon's Town. The octopus is long gone—octopuses rarely survive more than 18 months in the wild—but her co-star and "student," filmmaker Craig Foster, still visits her former home in daily dives that are as much about pilgrimage as they are about science. "When an animal has such an influence on you … you can't help but love the environment that made her," he says, gazing down at her kelp-forest cove from the picture window of his cliffside bungalow. "Going there feels like going home."

Foster's land-based home is laden with treasures brought back from his own hunting expeditions. Shells and sea glass colonize the flat surfaces. Stacks of abalone shells the size of dinner plates teeter in a corner. The skin of a small shark wraps around a driftwood pillar. It's as if, piece by piece, he is trying to bring the ocean into his living room.

Since it premiered on the streaming platform in September, the documentary has become a global hit. Although Netflix does not release viewer data, it says the film has been in the top 10 most watched in Israel, South Africa and Australia, as well as the U.S. Amy Schumer recommended it to her 10.3 million Instagram followers.

With the same introspective cadences of the film's voice-over, Foster muses that in a time of growing separation from nature, the film has triggered a fundamental human longing to reconnect with our origins. "Just under the skin we're still fully wild. And I think this touches on what it's like to glimpse that."

My Octopus Teacher tells the story of the unusual bond between Foster and that wild octopus, which he encounters while free diving. For more than a year, Foster follows her on daily dives as she hunts for prey and evades her predators with an uncanny ingenuity that calls into question human assumptions of superior intelligence.

But Foster is no detached observer. He also documents his own efforts to understand her world and how that quest led to his emotional and intellectual growth. "She taught me humility," he says, while grazing on a postdive snack of whole-grain toast with butter. "She taught me compassion. She opened my mind to just how complex and precious wild creatures are."

Celebrated for his groundbreaking 2000 film, *The Great Dance,* about the San bush hunters of the Kalahari Desert, Foster found himself in 2011 burnt out and physically wrecked by the stress of trying to survive as a nature-documentary filmmaker. He felt like he had lost his connection to the world around him, he says, and even to his own family. He recalled the San hunters' deep immersion in nature and realized that was what was missing in his life. "I desperately wanted to have that feeling," he says. "If I could spend every day in a wild environment, how well could I get to know it? Could I learn to read tracks like the hunters in the Kalahari? Could I predict animals' behavior?"

Rather than go to the desert, he turned to the sea at his front door, and vowed to free-dive every single day for 10 years. Braving frigid waters and epic storms, Foster has rigorously kept that commitment. The experience has been transformative, he says. "The cold calms you. It fills your brain with these feel-good chemicals. And then you're in this golden forest, this liquid environment that hasn't any gravity. And that becomes your underwater home, especially if you're visiting it every day."

It was only several years into his promise that the strange behavior of a small speckled octopus sparked his curiosity, and kept his attention for the duration of her short life. By studying her actions and observing her learn, play and recover from injury, he applied lessons to his own life—even knitting together a fractured relationship with his son.

WHILE FOSTER DOCUMENTED every dive with a video camera, he did not set out with a plan to make a film. His goal was to better understand the complex ecosystem at his front door and, in doing so, draw attention to what he calls the Great African Sea Forest, a 1,200-km-long stand of golden sea bamboo, or kelp, along Africa's southwestern coast. One of only eight kelp forests in the world, it is vital for ocean biodiversity but little known outside of conservation circles.

In order to safeguard the region, Foster cofounded the Sea Change Project in 2012. "The idea was to get this Great African Sea Forest, the home of the octopus teacher, recognized as a global icon, like the Serengeti or the Great Barrier Reef," he says. Foster is hoping that the success of *My Octopus Teacher,* which was backed by his NGO, will effectively brand the sea forest in the popular consciousness. "You have to name a place in order for people

FOSTER QUICK FACTS

Commitment
Foster missed only five days of his 10-year commitment to daily dives. He made up for them by going out twice the next day.

Namesake
He has a shrimp named after him, *Heteromysis fosteri,* one of three new species he discovered. It was featured on the BBC's *Blue Planet* series.

Big finish
Female octopuses can lay up to 100,000 eggs, but lay eggs only once, at their life's end. Less than 5% survive.

to care about and protect it," he says.

His snack finished, Foster gets up to give a tour of his collections. An old library card catalog has been repurposed as a specimen case, each drawer containing shells found in the abandoned den of an octopus. Some octopuses were limpet specialists; others hunted giant turbo snails. As Foster points out a tiny hole in an abalone shell that shows where an octopus has drilled down to get at the creature inside, his quiet reserve disappears. Each item has a story, and he starts tripping over his words in an attempt to tell them all. "This is a helmet shell snail," he says, picking up a creamy orange spiral. It took him two years of dedicated tracking to figure out how it killed sea urchins—something, he says, "even scientists didn't know."

One doesn't need an exotic location (or an octopus) to reconnect with nature, Foster says. While he was fortunate to have the ocean at his doorstep, wildlife teachers can be found anywhere, even in the middle of a city. "If you suddenly took one tree in New York and figured out how that tree changed over 365 days and what animals interacted with it, what insects live in there, how that tree is surviving, I think that could have quite a large effect on your life."

'It's the most exciting place to dive because you're just about to solve 10 mysteries.'

CRAIG FOSTER, shown above with an octopus, on diving in the kelp forest near his home

For Foster, it's that intimate knowledge that offers real transformation. Just a few months shy of completing his 10-year vow, Foster says he can't imagine ever giving up his daily dives. He's not even tempted to dive anywhere else. "The amazing thing is that when you get to know this kelp forest like I have, it's the most exciting place to dive on earth because you're just about to solve 10 amazing mysteries. You know that crab. You know that octopus, and you just can't wait to know them better."

And the discoveries keep coming. Just this morning he found an unusual sea star, one that was blue when it should have been orange. Is it an aberration? A mutation? Or a whole new species? He doesn't know, but he can't wait to get back into the water to learn more. As with the octopus that changed his life, "it always starts with these little mysteries … all these mysteries you're trying to figure out." With any luck, that sea star may become his next teacher. ◻

ROSS FRYLINCK—THE SEA CHANGE PROJECT

In July, there was plenty of room at Waikiki Beach in Honolulu

Hawaii's reopening kindles old tensions

By Anna Purna Kambhampaty/Honolulu

AT ALA MOANA BEACH PARK, NEAR DOWNTOWN HONOLULU, lifeguard Mo Freitas is ready for the water to get a bit more crowded. When Hawaii Governor David Ige in March instituted a mandatory two-week self-quarantine for anyone coming to the state, the move effectively stopped tourists from visiting. Now—even as the U.S. hit 11 million COVID-19 cases as of Nov. 15—Hawaii, like Freitas, is welcoming them back.

"It was a nice break for lifeguards when they weren't here," Freitas says, "but it's a good thing that they're returning, for our businesses and for many people on the island."

Tourism, the single largest source of private capital for the state's economy, brought Hawaii $17.75 billion last year, so it's not surprising that the state is among those hit hardest by the pandemic. More than 1 in 6 jobs here were gone by August, and although other tourism-dependent states, like Nevada, have recovered most leisure and hospitality jobs lost from February to April, Hawaii still lags. Business owners hope looser restrictions—mainland U.S. tourists with negative COVID-19 tests have been able to skip self-quarantine since Oct. 15, and the program expanded to visitors from Japan on Nov. 4—will help them start to make up the difference. But the return of tourists also exposes a long-simmering tension over the role of tourism in Hawaiian life.

Just a few yards from the sand over which Freitas keeps guard, Rudy Perucho, putting his surfboard back in his car, expresses deep concerns about the return of tourists. "Some people come, and they don't respect the rules or have much regard for the land," he says, "and they don't recognize the fact that this land isn't theirs to begin with."

15%

Average percentage of people in Hawaii on any given day in 2019 who were visitors

1 in 6

Fraction of Hawaiian jobs lost from the beginning of the pandemic to August

THE FEELING PERUCHO describes is a friction that has been present in Hawaii for centuries. When British explorer James Cook became the first European to set foot on the islands, in 1778, the Native Hawaiian population was about 300,000. By halfway through the 19th century, in part because of the introduction of diseases like smallpox, it had diminished by more than 75%, to 70,000.

This past is on Perucho's mind today, he says, as visitors once again come to the islands at a fragile moment. He holds no hostility toward tourists—"I still welcome everyone," he says, in the aloha spirit—but some officials worry other reactions may be less tempered. In the early days of the pandemic, there were public altercations between locals and visitors who took advantage of cheap airfare to the islands. Not all officials agree with the new testing protocol, either. Three island mayors have said they want tourists to show a second negative test after arrival.

"In the worst-case scenario, our tourists that we invite here, perhaps some of them will be COVID-positive, and that unfortunately leads to a spike in infections," says Hawaii state senator Glenn Wakai, chair of the senate's committee on economic development, tourism and technology. "I'm really afraid that the local folks here are going to have a very antitourism sentiment if that in fact plays out."

On a recent day at Menehune Mac Candies, the oldest existing manufacturer of macadamia-nut candies in Hawaii, none of that wariness could be found. But having lost about 95% of sales since the start of the pandemic, company president Neal Arakaki says he still doesn't know what's next for the family-owned business. This year has shown how hard it is to make predictions about anything from public health to the economy, and now Arakaki is reluctant even to guess whether the business will survive at all. "It's a day-to-day thing," he says. The return of tourism is likewise unpredictable—but with or without local buy-in, Hawaii is about to find out how it goes. ◻

MICHELLE MISHINA-KUNZ—THE NEW YORK TIMES/REDUX

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Giving Thanksgiving

Texas-based grocery chain H-E-B usually spends November preparing for the city of Houston's annual Thanksgiving parade. But this year—with tens of thousands of Texans fighting COVID-19 infections and millions of Americans still out of work—that parade was canceled. Instead, the city, the Houston Food Bank and the grocery company are combining their resources to orchestrate a massive food-distribution event. H-E-B employees, pictured Nov. 17, are packaging boxes full of Thanksgiving necessities in preparation for high demand.

Photograph by Meridith Kohut for TIME

H·E·B
CID
Helping Here
H·E·B
9
MONTRICE
Wt. 22.7 kg

Kraft
Parme

Jessica Higginbotham, second from right, is thankful she was able to cook dinner for her five children on Nov. 17. She survived heart and kidney transplants in 2019; she and three other members of her family had COVID-19 this year. The health issues, paired with her husband Jeremiah's losing hours at work, cost the Baytown, Texas, family most of their life savings. "When it got really bad with the money, it was either pay the light bill or have food on the table," says Higginbotham, 40.

Photograph by Meridith Kohut for TIME

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The View

NATION

HOW TO END TRUMP'S CONSPIRACIES

By David French

Weeks after the votes were counted and winner named, two realities are clear. First, Donald Trump is growing increasingly unhinged in his quest to retain his grip on power. Second, only conservative media can prevent vast segments of the GOP base from descending further into the President's miasma of conspiracy theories.

INSIDE

BIDEN'S FOREIGN POLICY FACES MAJOR CONSTRAINTS

THE MISSED OPPORTUNITY OF THE NEW SPIDER-MAN GAME

LOSING MOM DURING THE PANDEMIC

The View is reported by Simmone Shah and Julia Zorthian

Trump's Twitter feed is full of debunked rumors and false claims, but in the late morning of Nov. 12, he reached a new level of wild speculation. In all caps, he tweeted, "REPORT: DOMINION DELETED 2.7 MILLION TRUMP VOTES NATIONWIDE. DATA ANALYSIS FINDS 221,000 PENNSYLVANIA VOTES SWITCHED FROM PRESIDENT TRUMP TO BIDEN. 941,000 TRUMP VOTES DELETED. STATES USING DOMINION VOTING SYSTEMS SWITCHED 435,000 VOTES FROM TRUMP TO BIDEN."

He cited the Trump-friendly One America News Network as the source for his explosive claim, but it's pure and utter nonsense. As the Associated Press reported, a clerical error in a small Michigan county "has snowballed into a deluge of false claims that Democrats have deep ties to Dominion Voting Systems, the company that supplies election equipment to Michigan and dozens of other states nationwide."

Given the public's vulnerability to tech-based conspiracies, it's incumbent upon public officials to be especially careful before making any allegation. But *careful* is never a word that's applied to Donald Trump. It's also not a word that applies to vast segments of conservative media, and it's conservative media celebrities who truly matter in the fight for truth in right-wing America.

A reporter with One America News Network at a Trump campaign rally in Newport News, Va., on Sept. 25

MEMBERS OF THE HOUSE AND SENATE are largely irrelevant to the creation and evolution of right-wing public opinion. Republican politicians have little independent political or cultural influence, and their fortunes depend greatly on remaining in the good graces (or at least staying out of the line of fire) of a specific constellation of media celebrities concentrated in Fox prime time, talk radio and a select group of online outlets like Breitbart or Newsmax. They're the gatekeepers, and they make or break political careers.

Trump is deeply aware of the importance of maintaining power and influence within conservative media. He's lashed out at Fox News repeatedly—a transparent effort both to intimidate Fox and to promote those outlets he believes are even more friendly to his presidency and to his claims of vote fraud.

Here's the blunt reality. As Trump leaves the White House and enters private life, the trail back to moral norms, back to integrity and back to robust and meaningful ideological debate (as opposed to "own the libs" trolling, conspiracy theories and personal insults) will be extraordinarily difficult. After all, conservative media is still dominated by the same personalities and the same outlets.

Moreover, because the election was close, the argument for conservative media to reform itself will have to be moral and patriotic rather than self-interested and pragmatic—made to a community that specifically scorns norms and often mocks arguments based on character or integrity. Trump lost, but his constituency remains vast. His personal style remains dominant. Imitating him and defending him will remain the path of least resistance.

But the need for courage remains. Conspiracy theories like the Dominion theory Trump tweeted are false. Belief in conspiracies harms this nation. Indeed, we've witnessed the high cost of low trust in our nation's response to the coronavirus. Antimasking ideologies, "just the flu" misinformation and "plandemic" conspiracies have cost lives.

Conservative media was created and thrived in large part because of the realization that mainstream media had glaring blind spots. Fox pledged, for example, to be "fair and balanced." And while a few publications have stayed true to their purpose, others mainly feed the right's outrage machine.

Trump's relentless disinformation campaign raises the question: Is there a line left that angry right-wing celebrities won't cross? They can help spare this nation an even deeper level of animosity and mistrust. There is no path back to sanity that doesn't travel at least partway through the very loud voices of the vast right-wing media-entertainment complex.

French is a columnist for TIME. His new book is Divided We Fall: America's Secession Threat and How to Restore Our Nation

SHORT READS

Highlights from stories on **time.com/ideas**

A new chapter

Katie Couric tried to keep an open mind when Donald Trump was elected President, but, she writes, he grew smaller, not bigger, in the job: **"I'm just looking forward to, as Joe Biden said, lowering the temperature of our national thermostat and seeing each other as human beings, not bumper stickers or lawn signs."**

Brief relief

Brittany Packnett Cunningham, host of the podcast *Undistracted With Brittany Packnett Cunningham,* rejoiced when Joe Biden and Kamala Harris were declared the winners, but she says the work is not done: **"Trump will not take systemic oppression with him when he packs up in January, and millions of our neighbors don't want to see it go."**

Love and loss

After he was killed in action, Annie Sklaver Orenstein's brother Ben was treated as a saint. But reading his journals in quarantine helped Orenstein, founder of the site Dispatch From Daybreak, rediscover the real him. **"I had no idea he'd been so scared," she writes. "How did I not know he'd been so scared?"**

OAN: DREW ANGERER—GETTY IMAGES; SPIDER-MAN: INSOMNIAC GAMES/SONY

THE RISK REPORT

Biden faces a world that will be wary of U.S. leadership

By Ian Bremmer

FOR FOUR YEARS, Donald J. Trump has kept both U.S. foes and allies off-balance with his "America first" approach to global politics. For a world that had grown accustomed to the U.S. as rule-maker rather than rule-breaker of the international order, Trump's embrace of "What have you done for us lately?" international relations was understandably jarring. But it also served to open up new frontiers in U.S. foreign policy. Only someone with Trump's disregard for protocol could have engaged the North Koreans as quickly as he did; only someone with Trump's willingness to bring military and economic power quickly to bear could so quickly reshape the power balance of the Middle East in Israel's—and, by extension, the U.S.'s—favor.

There's an argument to be made for employing Trump's approach—unilateral, tactical, and much more likely to use U.S. power in short and limited durations—in our increasingly "G-Zero" world, one lacking in global leadership. In such a dysfunctional world, securing gains whenever you can get them and moving on to the next challenge hold appeal. Trump will leave office on Jan. 20 with more foreign policy wins than his critics will want to give him credit for precisely because of this approach. He will also leave office having failed to fundamentally address critical long-term challenges facing the U.S., such as the rise of China and the enduring threat of climate change.

President-elect Joe Biden's return to Washington also marks a return to more traditional foreign policy, one that lines up with Biden's own personal orientation: multilateral, strategic and much more hesitant to use U.S. military power when push comes to shove, even when the U.S. holds the asymmetrical advantage. For challenges like climate and China—multifaceted, complex, with spillover across all sectors of society—a concerted effort among like-minded allies is needed, making the consensus-building Biden a U.S. President better suited to lead the charge. But that hesitancy to use U.S. power means that the U.S. is unlikely to reap the same type of short-term rewards it did under Trump; it's also worth noting that there's never been a more difficult time since the end of World War II to be an avowed multilateralist.

Biden is about to discover firsthand he is dealing with the same world Trump is

NOT THAT IT IS ALL bad news for Biden on the international front; following Trump as President means that Biden gets to continue drawing down U.S. troops in Afghanistan and Iraq with minimal political blowback at home. It also means he can continue pushing China with more sanctions, all while couching his actions in more traditional diplomatic speak and bringing U.S. allies on board in the process. That return to diplomatic normalcy alone will yield dividends for Biden—expect to hear from dozens of supportive allies in coming months as a Biden-led US reaffirms its commitments to the U.N., NATO, the Paris Agreement and the World Health Organization.

But when it comes to the big global issues, Biden is about to discover firsthand that he is dealing with the same world Trump is—one in which the appetite for global cooperation is limited. That was fine for Trump, because he was never inclined to go that route in any case, relying on U.S. military and economic might to power through his preferred outcomes. But for a President Biden who values international coordination and cooperation, that poses a unique and existential challenge. He now gets four years to figure it out. ◻

VIDEO GAMES

Swing and a miss

PlayStation's new *Spider-Man: Miles Morales* game was uniquely positioned to respond to our current moment. Instead, its creator Insomniac bends over backward to avoid any nuanced conversation about racism in policing. While there's lots to love, like the thrill of swinging through a gorgeously rendered New York, players will notice that police are largely missing from the crime-fighting game.

Miles, a Black–Puerto Rican Spider-Man and son of a cop, may have complicated feelings about criminal justice. But we never hear them. At one point, private security guards aim to kill Miles, even as he puts his hands up; passersby pull out their phones to film. But since the men with the guns are masked corporate stooges, not police officers, the moment loses its power.

Even more so than books and film, video games literally put players in characters' shoes, which should help build empathy. Insomniac rendered a realistic city. The next step should have been credibly depicting Miles' specific point of view on the urgent matters of the day.

—Eliana Dockterman

Miles Morales is Spider-Man in the new PlayStation game

Grieving my mother's death without the reassurance of rituals

By Nicole Chung

THIS YEAR ON MY MOTHER'S BIRTHDAY, IN OCTOBER, I WOKE up from one of many dreams I've had about her since her death. I'd been sitting with family and friends in my grandmother's backyard, our lawn chairs scattered across a carpet of sun-dappled grass. We were all talking, sharing memories of my mom. I don't remember the specific stories, but I know there was joy, more laughter than tears—even though, in my dream, my mom was also gone.

Like so many grieving families in 2020, we haven't been able to gather or mourn together. My mother died of cancer in May, and my husband, kids and I had to watch the small funeral service via livestream from across the country. Until the day before, I wasn't sure we would be able to do even that—two months into the pandemic, the funeral-home representative told me they had never set up a livestream before. My mom's priest had privacy concerns about filming, and said it was already difficult to choose who among my mother's many church friends could attend. An additional person filming would, he said, "take a place that could have gone to another mourner."

When I heard this, I caught my breath and let the silence stretch. I didn't want to get angry. I didn't have the energy. My mom loved her church community, who had been her family too—no doubt one reason she stayed at home instead of coming to live with me when I asked—and I was grateful to them for being there for her when I wasn't, doing what I couldn't. But I was her only child.

"You have four spots you wouldn't if my husband, my kids and I were able to be there," I pointed out. "Can't you just think of the person filming as taking my place?"

There was a pause. "Of course," he said. "You're absolutely right. I'm sure we can work something out."

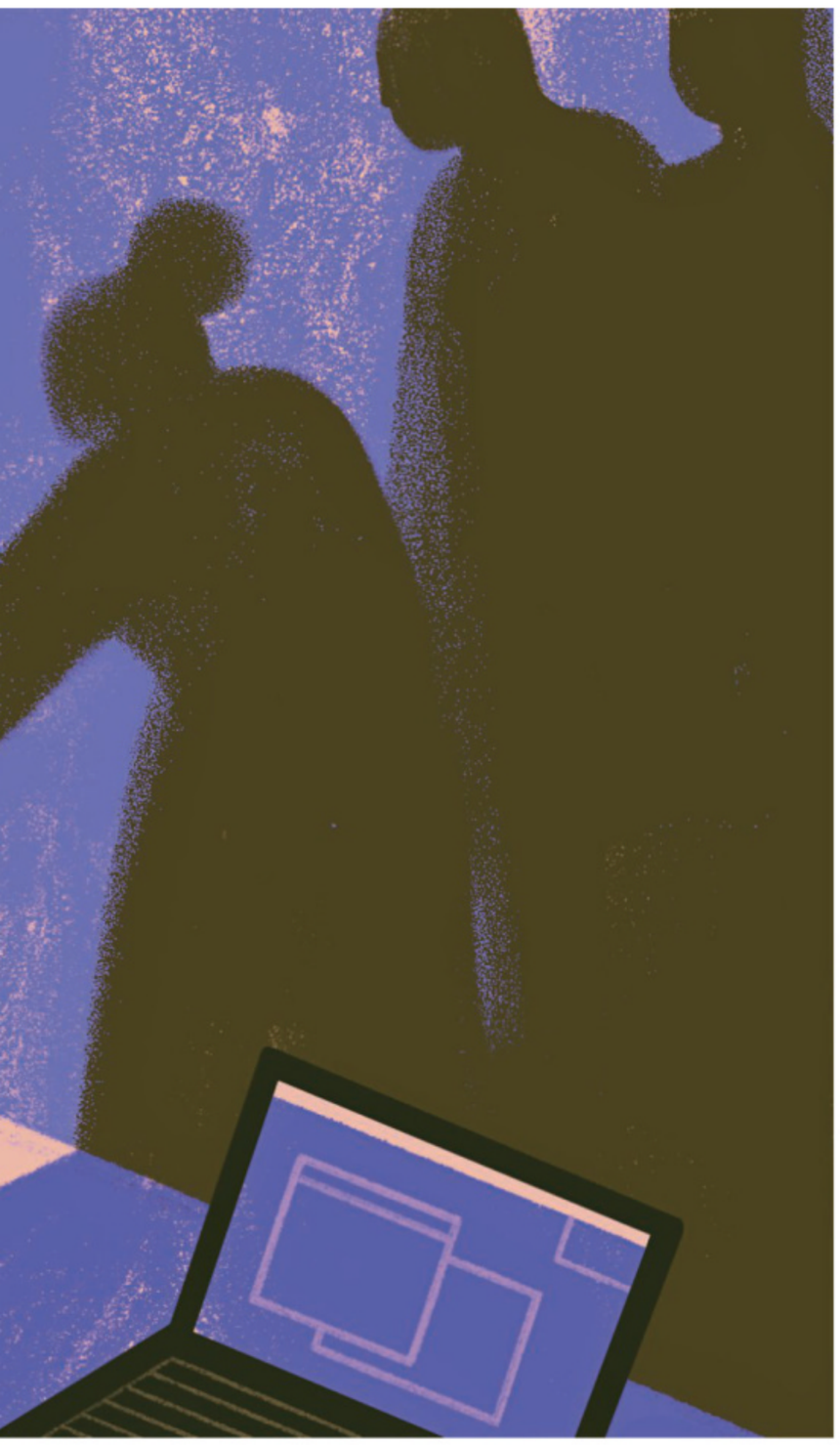
THE LAST TIME I saw my mother in person was in late January, when my 12-year-old and I flew out to visit her. We had seen her just a month earlier at Christmas, and I had also planned trips for March and April.

But by mid-March, visiting felt impossible, especially traveling 3,000 miles from my high-infection area to my mother's small town, where there were almost no cases. Mask wearing was becoming more common but was far from universal. To even attempt the trip responsibly would mean two weeks of quarantine at either end, in addition to however long I spent with my mom. Our home life just wasn't set up for one of us to parent alone for weeks or months, particularly while working remotely and dealing with anxious kids and distance learning. And what if I carried the virus to my mom? What if I passed it to her caregivers, her hospice nurse? What if I gave it to my husband or kids, or someone far more vulnerable whose name I would never know, whose illness and death I would never be aware of causing?

So I postponed one trip, then the next. Surely, I kept thinking, enough people would do the right thing—stay home if they could, wear masks when they couldn't—and we'd all get a reprieve. Instead, state after state began to reopen, even as the virus kept raging. Soon after attending my mom's funeral via livestream, I would see ads welcoming tourists back to Disney World in a state where infections were surging.

My mother was cared for by her sister and sister-in-law, assisted at night by hired aides. I did my best to handle her finances, help manage home health care, send flowers and letters and gifts. When I called, I knew I was burdening her caregivers with still more tasks: giving me updates, seeing whether my mom could speak with me, bringing her the phone or tablet. I could not stop calling, worrying or apologizing to everyone.

One day, her hospice nurse called me with news that seemed too good to be true. "She had a great day! She's such a fighter—she has a real chance at more quality time." My mother called us



shortly after, and my husband and kids and I told her we were glad she'd had a good day and we wished we were with her. She spoke slowly, with some effort, and sometimes she would forget to hold the tablet at the best angle, so we could see only the top of her head. But after hearing about her day—sitting up, eating ice cream, even joking with people—I told myself that she was worn out; she could still rally.

"Never, never forget how much I love you," she said to us. It was the last time we'd hear her voice.

SINCE SHE DIED, many people have asked me if I feel a lack of "closure" because of all the moments missed. My father died 2½ years ago, and I was at his funeral, and I still don't feel anything like closure. It's an open wound. It always will be.

In many ways, I know that I am fortunate: I was able to help support my mother financially during her illness, something I would have been unable to do to a meaningful degree two or three years ago. I know that she was cared for at the end by people who loved her. And she and I did have a chance to say goodbye—the last time I saw her in person, I asked her forgiveness, told her I loved her and was lucky to be her daughter. I kept saying those same things, over and over, on all the calls we had before she died. I'll always wish I could have been there, or that she'd been here, but I'm not holding on to anything I wish I'd told her—in the end, there was nothing broken or left unsaid between us.

What so many of us who've lost family members and close friends during the pandemic are facing is not grief or trauma deferred. It's not a lack of emotion at all, but a swelling tide of it, unchecked by the reassurance, the scant but real comfort, that can and does often accompany the rituals we are usually able to participate in when a loved one dies. These rituals can still leave us feeling incomplete, but they can also act as signposts, guiding us from one phase of mourning to another. When my father died, being at his funeral, seeing his casket lowered into the ground, crying with my mother were all things that helped me to acknowledge and feel the loss, to begin to process and live with it.

'Never, never forget how much I love you,' she said to us. It was the last time we'd hear her voice

I never imagined I would lose my mother without those familiar touchstones. I watched her funeral from my living-room couch, squished between my husband and children, the same couch where we'd all crowded for our last call with her. There was no gathering or reception after, no hugs and fellowship with our family and friends, no stories exchanged in anyone's yard. When the live feed cut out, I retrieved a vase of garden-grown snapdragons that a kind neighbor had left at our door, and then we ate the lunch my husband had prepared. My 12-year-old and I took a quiet walk together. I didn't see or talk to anyone outside my household.

The rest of the day proceeded like any other, like most days have since: I do my job, I help my 9-year-old with school, I wear my mother's rings and take long walks and try to keep alive all the plants I received as sympathy gifts. Our kids have been asking for a dog for a while, and 2020 felt like the year to say yes ("We need a win," I told a friend), so now we have a new, chaotic but adorable family member to focus on. "I think Grandma knows we're getting a dog and is excited for us," one of my kids announced after we made the decision. "I just think that somehow, she still knows about the big, important things." I told her that made sense to me, and amid the sadness and grief, I felt glad that we all still talk about my mom often.

For so many of us now, the personal traumas of this pandemic are constantly compounding as the crisis stretches on, as we remain cut off from some of our loved ones far longer than we once imagined possible. These losses will represent still more detritus for us to grapple with—individually, within our families and communities, and as a nation—in safer, hopefully healthier days ahead. But that doesn't mean we can't feel and find ways to honor our grief now.

On my mother's birthday, I wrote her a letter, looked through family photos, bought a nice meal to eat with my husband and children—nothing fancy, nothing my mom had ever made for me, just something I knew she would have enjoyed. I couldn't visit her grave, with the headstone I chose to match my dad's, but I sent flowers to a relative who agreed to place them there for me. I ordered from the same florist who had designed my mother's memorial flowers, and they promised to use the same colors. The two arrangements were made in different seasons, with different flowers in bloom, so of course they could not be exactly the same. Nor can a livestreamed funeral provide exactly the same experience, the same companionship or comfort, as one attended in person. But neither the devastating loss nor the depth of gratitude I feel because I had such a parent can be undermined by the unforeseen, by pandemic or by distance. She'll always be my mom, and I'll always miss her, and in that sense, her absence and my grief are precisely what I would have expected.

Chung is the author of the memoir All You Can Ever Know

ILLUSTRATION BY SARA WONG FOR TIME

A Denver woman looks from her home at a line of cars with people waiting to get tested for COVID-19 on Nov. 10

FAR FROM OVER

COVID-19 IS WORSE THAN IT'S EVER BEEN IN THE U.S. WHY AREN'T WE ACTING LIKE IT?

BY JAMIE DUCHARME

PHOTOGRAPH BY STEPHEN SPERANZA

NOTHING ABOUT THE CURRENT COVID-19 EXPLOSION SHOULD COME AS A SURPRISE. AS THE VIRUS SPREAD THROUGHOUT SUMMER AND FALL, EXPERTS REPEATEDLY WARNED WINTER WOULD BE WORSE.

They cautioned that a cold-weather return to indoor socializing, particularly around the holidays, could turn a steady burn into a wildfire. Throw in a lame-duck President, wildly differing approaches by the states and a pervasive sense of quarantine fatigue, and the wildfire could easily become an inferno.

So it has. The U.S. is now locked in a deadly cycle of setting, then shattering, records for new cases and hospitalizations. On Nov. 13, a staggering 177,224 people in the U.S. were diagnosed with COVID-19. As of Nov. 17, more than 70,000 coronavirus patients were hospitalized nationwide. And unlike in earlier waves, which were fairly regionalized, the virus was as of Nov. 17 spreading—and fast—in virtually every part of the U.S., according to Johns Hopkins University data. This coast-to-coast surge is pushing hospitals across the country to the edge of catastrophe, their doctors and nurses exhausted and their intensive-care units running dangerously low on beds. Some cities are already playing out their dystopian worst-case scenarios; in El Paso, Texas, the dead have been shunted to mobile morgues partially staffed by the incarcerated.

But the U.S. public has become terrifyingly good at ignoring those harsh realities. Almost 40% of respondents to a recent Ohio State University survey said they plan to gather with at least 10 people for Thanksgiving, even though in many areas this comes with the likelihood of sharing a table with an infectious person. Many people continue to dine at indoor restaurants and work out in gyms, because many elected officials continue to let them. Almost 980,000 people passed through U.S. airport security checkpoints on Nov. 15, nearly quadrupling the number recorded six months earlier, when COVID-19 was nowhere near as widespread.

That people are behaving this way at the most dangerous moment of the U.S. outbreak speaks volumes about human nature, which in the world of public health can be as dangerous a variable as any pathogen. Rallying cries about flattening the curve have been replaced with a desire to return to normal life at all costs. Solid leadership is in short supply, with the outgoing Trump Administration refusing to concede the election and give President-elect Joe Biden the tools he needs to take over the pandemic response. Good news about promising COVID-19 vaccine candidates seems to be emboldening people in the wrong ways.

Bodies loaded into a refrigerated temporary morgue trailer in El Paso, Texas, on Nov. 16

PREVIOUS SPREAD: THE NEW YORK TIMES/REDUX; MARIO TAMA—GETTY IMAGES

As Americans' reactions to the pandemic become increasingly divorced from the reality of it, public-health officials may be facing their biggest challenge yet: forcing the public to face how bad things still are, and how much worse they may become.

FROM A PUBLIC-HEALTH PERSPECTIVE, Thanksgiving was always going to be a problem. Maskless indoor gatherings in close quarters are perfect breeding grounds for the virus, and many Thanksgiving celebrations will likely include older adults at high risk of severe COVID-19. After months of separation, it's natural that people are desperate to see loved ones and reclaim a sense of normality—but things are far from normal.

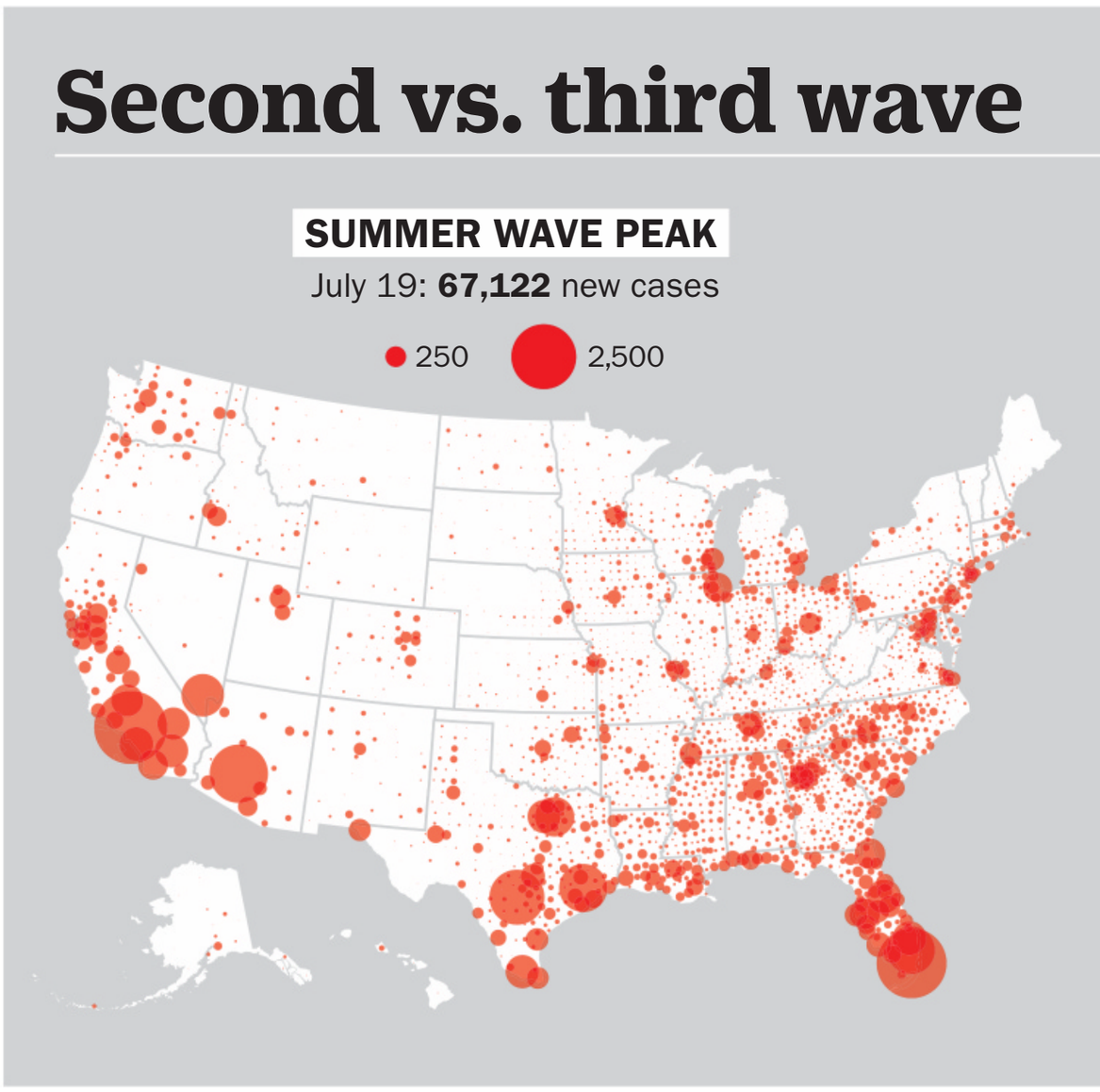
More than half of U.S. COVID-19 cases have been recorded since August, and the speed at which they are accumulating is ratcheting up: more than 1 million new cases were logged in just the week leading up to Nov. 17. Nonetheless, people appear unwilling to take the kind of drastic measures they did this spring, when lockdowns went into effect in many parts of the country and most people cut out socializing with anyone outside their household. "The fear was there at the beginning. It was national, there was a sense of patriotism—and then it faded," says Dr. Natasha Kathuria, an emergency-medicine physician based in Austin. "The public is tired."

With resolve weakening, models in mid-October suggested up to 50 million Americans would travel for Thanksgiving this year, according to AAA's annual holiday-travel report—not

many fewer than the 55 million who did so last year. (AAA did note that it expects the actual number of 2020 travelers to be lower, given the evolving COVID-19 crisis.) With COVID-19 case counts rising, that could be catastrophic. Canada saw a spike in cases after its Thanksgiving holiday in October, and the U.S. may be in for the same fate. As people travel to and from areas where the virus is surging, they risk carrying the infection with them and seeding it to new places.

People may be inclined to travel because of a mistaken perception that the pandemic is better controlled now than it was earlier in the year. In mid-April, about 37% of Americans said they were "very" concerned they or someone they know would catch COVID-19, according to data from the website FiveThirtyEight. As of Nov. 17, that number had dipped to less than 32%, despite the fact that case counts are now higher and more geographically diverse than they were in April. A recent study in the medical journal *PLOS ONE* found that people of all ages were more likely to partake in risky behaviors, like attending gatherings and seeing friends, as the pandemic dragged on.

That's in part because the Trump Administration has repeatedly promised, without evidence, that the U.S. is turning a corner on the pandemic. But it may also be an unwanted side effect of a rare flurry of good news related to the outbreak.



THE U.S. FOOD AND DRUG ADMINISTRATION has now authorized multiple drugs for treating COVID-19, including the antiviral remdesivir and the monoclonal antibody bamlanivimab, and hospitals are reporting better survival rates among COVID-19 patients than they were this spring. But Dr. Megan Ranney, an emergency-medicine physician from Brown University, says that could easily change if hospitals become overwhelmed—which many already are, and many more will be as recently diagnosed patients get sicker in the coming weeks.

"Yes, we know more than we did," Ranney says. "However, many of the gains we have seen have nothing to do with having good treatments—they have more to do with the fact that we're comfortable with [the virus] and the health system isn't overwhelmed." If the virus's spread isn't brought under control, that won't stay true. And though doctors do know more than they did this spring, there are still plenty of outstanding questions about why some previously healthy people get seriously ill and others don't; why some people develop long-lasting symptoms after infection and others don't; and how immunity to the virus works.

Vaccines have also been a source of optimism lately. Pharmaceutical companies Pfizer and Moderna each announced in November that their vaccine candidates are at least 90% effective at preventing COVID-19, setting off a flurry of positive headlines. But, as of this writing, neither vaccine has yet been approved or granted emergency-use authorization by the FDA, and even once they are, it will take months for doses to become available to most of the general public.

The promising vaccine news "doesn't mean that we can go back to our pre-pandemic lifestyles," says Dr. William Moss, executive director of the International Vaccine Access Center at the Johns Hopkins Bloomberg School of Public Health. "We're going to have to continue our social distancing and mask wearing for the foreseeable future, until we get really high coverage with a vaccine that's highly protective and reduces transmission."

But individual choices around masking and social distancing only go so far. In times of crisis, people turn to their leaders for support and guidance—and on that front, elected officials are failing. The Trump Administration has done little to counter rampant misinformation about the pandemic, and has made numerous incorrect statements about the virus's origins, spread and deadliness. The COVID-19 situation could be very different "if we had a President and Administration that were not going counter-current to science and facts," says Dr. Eric Topol, director of the Scripps Research Translational Institute. "From day one, Trump and his team have basically not taken it seriously."

'There was a sense of patriotism—and then it faded. The public is tired.'
—DR. NATASHA KATHURIA, Austin

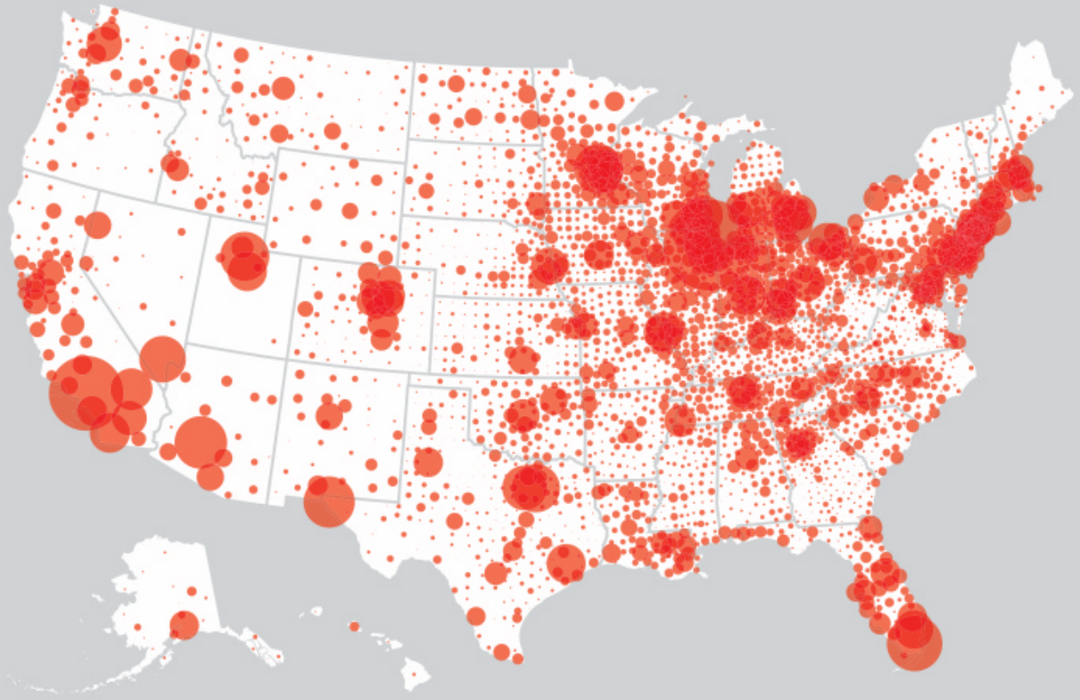
Now, with Trump serving out the rest of his term as a lame duck who won't admit he lost, the situation is particularly scary, Topol says. Trump has stopped attending White House coronavirus task-force meetings and has said little about the current coronavirus surge gripping the country.

President-elect Biden and Vice President–elect Kamala Harris have signaled commitment to public-health interventions that could help get the virus under control, like expanded access to testing, mask mandates and a robust vaccine-distribution program. But Biden and Harris can't do much of substance until they take office, and the Trump Administration

THE U.S. ENTERS WINTER FACING OUTBREAKS ACROSS THE COUNTRY

CURRENT WAVE PEAK

Nov. 17: **154,997** new cases



NEW CASE COUNTS ARE 7-DAY ROLLING AVERAGES. TIME GRAPHIC BY CHRIS WILSON AND LON TWEETEN

is reportedly withholding information about vaccine development and distribution that could help solidify plans for January. And with no official platform from which to communicate with the public, Biden and Harris "are not having nearly the impact that they could," Topol says. On Nov. 16, Biden said that "more people may die" if the Trump Administration does not coordinate the transition of the vaccine program. (Biden has also pushed for the passage of a coronavirus-relief bill during the lame-duck period, but it looks unlikely one will clear Congress.)

State and local leaders have also been slow to reimplement lockdown measures that could help curb the virus's spread. Unlike in Europe, where countries including France, Italy and Germany reimplemented restrictions of various levels in response to spiking case counts this fall, many U.S. officials have been hesitant to slap regulations on reopened businesses. Europe is struggling right now too—France, Russia, Spain and the U.K. hold the fourth through seventh spots on the list of the world's hardest-hit countries—but many of the Continent's leaders have shut down businesses and public places, and distributed relief money, to contain the virus. Officials across the E.U. have also called upon citizens' senses of duty and empathy, promoting messages of unity and communal sacrifice.

The same can't be said of the U.S. Officials in Chicago and Philadelphia have issued new stay-at-home advisories, and states including Washington, California, Oregon and Michigan have closed restaurants for indoor dining. But in many parts of the country—even in areas where schools are once again closing, like New York City—people are still free to drink at bars, eat in restaurants and work out in gyms. "It is incredibly difficult, from a public-health perspective, to defend people eating maskless indoors or going to indoor gyms," Ranney says. She'd like to see "strategic shutdowns" of businesses in hard-hit areas, ideally with stimulus money to prevent further economic damage. More shocking, Topol says, is that some states, including Florida and Georgia, still don't require masks in all public places, even as cases go through the roof. North Dakota Governor Doug Burgum, who long resisted a mask mandate, reversed that stance on Nov. 13, but only after his state's test-positivity rate topped 15% and hospitals nearly exhausted ICU capacity statewide.

FOR THE U.S. to find the same curve-flattening spirit it harnessed this spring, public-health and elected officials must help a tired and skeptical population dig deep and accept that it's still crucial, and possible, to make changes that will keep the virus from spreading further. Quarantine fatigue is real, and so is misinformation. As of June, 25% of American respondents to a Pew Research Center poll thought there was some truth to the conspiracy theory that powerful people planned the coronavirus pandemic. Others have latched on to the incorrect idea, promoted by Trump and others in his orbit, that COVID-19 is "just the flu." Some don't think the pandemic is real at all—some patients have called the coronavirus a hoax until the moment they stop breathing, according to reports from a South Dakota nurse that have attracted widespread news coverage.

"My dream would be that politicians and people who have the trust of each side of the political aisle would come together and at least make a shared statement that COVID is not a political thing and this is real and this is what you need to do" to stop the spread, says Dr. Bradley Benson, a professor at the University of Minnesota Medical School. Letting public-health officials hold daily briefings and push out real-time data would help too, Topol says, since it would give people a reliable, nonpartisan source to turn to each day.

Individual doctors can also have a strong impact, Benson says. Americans typically trust their personal physician, often more than they trust researchers and scientists as a whole. Skeptics may be more likely to listen to their doctor's advice than to that of politicians and journalists—especially, Benson says, if it's personalized and contains direct requests about necessary behavior changes, like wearing a mask or canceling Thanksgiving travel. Positive vaccine news could also prove to those struggling with caution fatigue that there's a light at the end of the tunnel, as long as it's described as a fresh source of motivation rather than an excuse to abandon other pandemic precautions. "It's not just, 'Keep running,'" Benson says. "You're at mile 18 and you've got to get to 26. Let's double down."

But Kathuria says it's difficult to hammer home those lessons for people who don't want to listen. Social media platforms must do a better job of removing false content, she says, and all media outlets need to cover the pandemic accurately. In the meantime, Kathuria says she tries to stress that the joy of a Thanksgiving or Christmas with family pales in comparison to the pain of losing a loved one. For most people, who will never see the chaos of a packed ICU or the horror of an overflowing morgue, that's the best way to strike a chord.

"I really wish there was some way for us to show people what the suffering looks like," Kathuria says. "It doesn't hit home until it hits home." —*With reporting by* BRIAN BENNETT, MARIAH ESPADA, ALEX FITZPATRICK *and* JULIA ZORTHIAN

Emergency-room physician Jane Kim, in Brooklyn on Nov. 18

THE TOLL ON DOCTORS

CAN THE WORLD'S PHYSICIANS SURVIVE ANOTHER WAVE? BY TARA LAW

THE WEIGHT OF THE PANDEMIC FIRST CAUGHT UP WITH NEW York City ER physician Jane Kim in April. After spending weeks caring for seriously ill patients, she learned of four deaths among her "work family." Three died of the virus, another from suicide. Her grief "halted" her, she says: "You can't think. You can't move. You can't breathe."

Since then, Kim, 39, has leaned on friends, family and therapy to cope. She's also heartened that doctors now better understand how to treat COVID-19 compared with those early, uncertain days. But as cases rise nationwide, she worries that doctors are about to face a "tsunami" of patients. "I fear that we're not ready—emotionally, physically, mentally—to go through that again," Kim says. "I'm not."

As the COVID-19 pandemic has surged, receded and surged again, it has taken a tremendous toll on people like Kim. In the U.S. alone, more than 218,400 health care workers have contracted the virus and at least 800 have died, according to the U.S. Centers for Disease Control and Prevention; an estimated 12% of U.S. health care workers have been infected compared with approximately 3.4% of the general population. And many more are suffering in other ways—more than 40% of doctors in the U.K. are reporting worsening mental-health issues, according to an October survey from the British Medical Association. As another wave builds, it's safe to say that many health care workers are very far from O.K.

The problem of doctor burnout stretches far beyond U.S. shores. Silvia Giorgis, a 49-year-old anesthesiologist at the Maria Vittoria hospital in Turin, Italy, says doctors there rode the "adrenaline of a new challenge" during the first wave, but are now frustrated that too little was done to prevent a rebound. She's especially disheartened by the spread of false claims that doctors are exaggerating the danger to justify unpopular and economically damaging lockdowns. "We used to receive tons of food, enough pizza to feed entire neighborhoods and all kinds of encouragement every day," says Giorgis. "We went from being heroes … to being killers."

THAT SO MANY DOCTORS are exhausted could result in patients receiving inadequate care, potentially negating the benefits of our newfound treatment knowledge. Dr. Patrick Pavwoski, a 37-year-old neurologist at Mercy Health hospital in Muskegon, Mich., knows he needs a break, but several of his colleagues have tested positive or have suspected COVID-19. "If I get sick, I don't know what they're going to do," Pavwoski says. He recently had to walk away from a patient to take a moment to collect himself. "I was so exhausted, I was literally falling asleep in the room and wasn't listening to anything the patient was saying," he says.

Like other health care workers, Pavwoski is frustrated that more people aren't making sacrifices to help contain the virus. He's upset by photos of friends gathering without masks and when he hears that people are planning their usual Thanksgiving dinners, all while some of his neighbors are being admitted with COVID-19. "You see these people in the hospital you know weren't wearing masks," he says.

'Had this been handled differently, doctors wouldn't be getting burned out.'
—PATRICK PAVWOSKI, Michigan neurologist

For Kim, the New York City doctor, it's been especially hard to deal with people who doubt the pandemic's severity despite all evidence, from the skyrocketing caseloads in state after state to the upticks in hospitalizations that betray a calamity unfolding before our eyes. After someone sent her an article questioning whether her city's surge was real, she almost threw her phone against the wall. "How *could* these people?" she says. "How could you dare say that?"

—With reporting by FRANCESCA BERARDI/TURIN

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WHAT TO KNOW ABOUT VACCINES

YOUR GUIDE TO WHEN THEY ARE COMING AND WHAT IT WILL MEAN BY ALICE PARK

VACCINES NORMALLY TAKE DECADES TO DEVELOP and test, but two COVID-19 shots, from Moderna and Pfizer (in partnership with BioNTech), have gone from nonexistent to about 95% effectiveness in 10 months. Public-health officials and governments now have the dual challenge of convincing the public that the vaccines are both safe and scientifically sound, as well as figuring out how to distribute billions of doses. Here's what we know so far about how that's going.

WHEN CAN I GET VACCINATED?

That depends. Manufacturers have already begun producing vaccines, betting that they will be effective, so they can be ready to ship if the FDA authorizes them, possibly as soon as December. Still, doses will be limited this year and will be reserved for those at highest risk of infection, such as health care workers as well as those with essential jobs, like first responders and law-enforcement personnel. As vaccine manufacturers fire up production, more people, including those with chronic health conditions, and the elderly, will be able to get immunized. Dr. Anthony Fauci, director of the National Institute of Allergy and Infectious Diseases, says it may not be until spring that most Americans can start to get vaccinated.

WHO APPROVES THE VACCINES?

The Food and Drug Administration must approve any vaccine. But most COVID-19 vaccine makers won't initially apply for normal approval, which typically requires six or more months of follow-up study. Instead, they will likely ask for emergency-use authorization (EUA), which makes it possible to release new drugs and vaccines during a health emergency. For an EUA, the FDA has said companies should monitor trial participants for two months to make sure the vaccines are safe and don't lead to serious side effects. All of the testing and other requirements for evaluating safety and effectiveness remain the same for an EUA as for full approval. Many vaccine makers plan to apply for full approval of their shots once they accumulate the appropriate amount of follow-up data.

WERE SHORTCUTS TAKEN TO DEVELOP THESE VACCINES?

According to leading public-health experts and the vaccine makers, the same rigorous scientific process that goes into developing any vaccine was used to create the COVID-19 shots. But in some cases, new technology like the mRNA-based technique used by Moderna and Pfizer—the first two companies to finish human testing—have sped up the development process. The mRNA method doesn't require researchers to grow or manipulate SARS-CoV-2, the virus responsible for COVID-19; all they need is its genetic sequence, which Chinese scientists released in January. The technology is both fast and flexible, and allowed vaccine makers to develop and start testing their vaccines in a matter of months.

IF I GET VACCINATED, DOES THAT MEAN I CAN'T GET INFECTED?

Not necessarily. But it means you are less likely to get sick. When Pfizer announced that its vaccine was more than 95% effective and Moderna said its shot was 94.5% effective, that was how well they kept people from getting sick. In the studies, people were randomly assigned to get the vaccine or a placebo. If anyone in either group felt symptoms of COVID-19 (including fever, cough, headache and difficulty breathing), they reported it to the researchers, who then decided whether to test for COVID-19. So the studies did not test everyone to see how many people in the vaccinated group got infected compared with the placebo group. Instead, the scientists took those participants who tested positive for COVID-19 and compared how many in the vaccinated group went on to develop disease and how many in the placebo group did. The companies will continue to test people in the studies for antibodies to the COVID-19 virus, which would include people who did not show any symptoms of their infection, so they can get a better sense of whether or not the vaccines protect against not only getting sick but also against infection.

ARE ALL THE VACCINES MADE THE SAME WAY?

No. The various companies are relying on different technologies. Moderna and Pfizer use the mRNA technology based on the pandemic virus's genetic code. The AstraZeneca and University of Oxford team, as well as Johnson & Johnson/Janssen, are relying on different inactivated cold viruses loaded with COVID-19

DOGUKAN KESKINKILIC—ANADOLU AGENCY/GETTY IMAGES

A volunteer gets a shot on Oct. 27 in the Phase 3 study of Pfizer's vaccine candidate

viral genes that can produce viral proteins to activate the immune system, while both Novavax and the Sanofi/GlaxoSmithKline partnership are producing and then introducing proteins from the virus itself to trigger an immune response. All are close to completing testing of their shots.

WHERE CAN I GET VACCINATED?

In the first few months after the initial doses are shipped, there will likely be a limited number of providers— mostly in public-health clinics and major hospitals. But the federal government has authorized pharmacists to administer COVID-19 vaccines, so eventually retail pharmacies, community health centers and other locations will be offering COVID-19 shots.

CAN I CHOOSE WHICH VACCINE I GET?

Probably not. State health departments will likely be coordinating the ordering and distribution of doses, and they won't know which vaccines they will receive. Some health departments may request certain vaccines depending, for example, on factors such as whether some of their vaccine facilities have the proper storage equipment like the ultra-cold freezers needed for Pfizer's vaccine, or perhaps whether the shots show any differences in effectiveness among people of different ages, ethnicities or health conditions. So far, the Moderna and Pfizer vaccines don't show such distinctions, so they will likely be shipped out based on proposals that state health departments have submitted for how many doses they will need. Although Pfizer's vaccine needs to be stored at –70°C, the company plans to ship its doses in thermal packaging that can maintain that temperature for up to 15 days, as long as users replenish the dry ice included in the packaging.

WHY DO I NEED TWO DOSES OF VACCINE?

All of the COVID-19 vaccines being tested, with the exception of Johnson & Johnson/Janssen's, require two doses. That's because researchers found that while the body launches an immune response after the first dose, boosting that initial exposure to the virus magnifies that defense significantly. If a person hasn't been infected by the COVID-19 virus, it takes a little longer to prime the pump of their immune system against it.

WILL I HAVE TO PAY FOR A COVID-19 VACCINE?

Vaccines supported by U.S. taxpayer dollars under the Operation Warp Speed program—which includes those from AstraZeneca, Johnson & Johnson/Janssen, Moderna, Pfizer/BioNTech, Sanofi/GlaxoSmithKline and others—should be free for all Americans, although the details of the purchasing contracts are still unclear. Some health facilities may also charge an administration fee for giving the vaccine, which people will have to pay out of pocket.

WILL I STILL HAVE TO WEAR A MASK AFTER I GET VACCINATED?

Yes. Studies so far show only that the vaccines can protect against getting sick with the disease, and may not prevent being infected with the virus. So it's important to still follow all the public-health measures that throw up an invisible wall against the coronavirus. Even if you're immunized, you can still get infected with the virus and therefore pass it on to others. That's why even as more and more people get vaccinated, health officials will continue to ask you to wear a mask in public, practice social distancing and avoid large indoor gatherings. Those basic behaviors will remain critical in keeping the virus from finding new hosts.

Lines for COVID-19 tests, like this one in Washington, D.C., make it hard to control the pandemic

VIEWPOINT

THE TEST WE NEED

A FAST TESTING REGIMEN IS VITAL TO GETTING CONTROL OF THE PANDEMIC BY MICHAEL MINA

WE ARE AT WAR WITH A VIRUS THAT IS CURRENTLY KILLING Americans at the rate of two 9/11s a week—by Christmas it could be three. If 1,000 Americans were dying each day in a war, we would act swiftly and decisively. Yet we do not. The virus is winning.

The U.S. government has put most of our eggs in the vaccine basket, and despite the vaccine's always being one more month away, we have a long road ahead before a safe, effective one is widely available. We need a multipronged public-health strategy that includes a national testing plan that utilizes widespread frequent rapid antigen tests to stop the spread of the virus. It would significantly reduce the spread of the virus without having to shut down the country again and, if we act today, could allow us to see our loved ones, go back to school and work, and travel—all before Christmas.

Antigen tests are "contagiousness" tests. They are extremely effective in detecting COVID-19 when individuals are most contagious. (They detect 98% of the cases that a PCR test would detect.) Paper-strip antigen tests are inexpensive, are simple to manufacture, give results within minutes and can be used in the privacy of our own home—the latter is immensely important for many people across the U.S.

THE LEADING PROTOTYPE for the antigen test I'm describing includes a small paper strip with a special molecule embedded on it that detects SARS-CoV-2 and turns dark when the virus is present in the sample. To use the test, the person gently swabs the front of their nose. They put the swab into a small prefilled tube and drop a paper strip into the tube. Within minutes, the results are known by whether or not a line shows up on the paper (much like a pregnancy test).

If just 50% of the population test themselves in this way every four days, the outbreak collapses. By giving people the tools to know, in real time, that they are contagious, they stop themselves from unknowingly spreading to others. Deprived of new hosts, the virus fades, just as it does when it encounters a population vaccinated against it. And testing buys time for vaccine rollouts, which will stretch into years worldwide.

The return on investment would be massive, in lives saved, in health preserved and, of course, in dollars. The cost is so low ($5 billion to begin rolling out nationwide testing) that not trying should not even be an option for a program that could quickly turn the tables when the virus is wreaking untold economic damage.

The government would ship the tests to participating households and make them available in schools or workplaces. This program doesn't require the entire population to participate. The point is to use these tests frequently so people are likely to know their status early, before they transmit to others. It is frequency and speed of getting results, and not the absolute sensitivity of the test, that should take center stage.

Give people the tools to know, in real time, if they are contagious

Countries like Slovakia are currently utilizing mass rapid antigen-testing programs and already seeing great success. A large and organized deployment of rapid paper-strip tests can enable the U.S. to begin to achieve normalcy within weeks—we just need to start now.

Mina, M.D., Ph.D., is an assistant professor of epidemiology and immunology at the Harvard T.H. Chan School of Public Health

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Lost in the Pandemic

IN THE CRUSH OF COVID-19, THOUSANDS OF NEW YORKERS ENDED UP IN UNMARKED GRAVES. THIS IS THE STORY OF ONE

By W.J. Hennigan/Hart Island, N.Y.

Photographs by Sasha Arutyunova for TIME

Mist gathers on the eastern shore of Hart Island, the city's "potter's field"

THE SUN HAS BARELY RISEN ABOVE THE GLASSY surface of Long Island Sound. A breeze sweeps over an island half a mile from the Bronx where 15 workers watch a backhoe remove the layer of soil that separates a mass grave from the outside world. There are 1,165 identical pine caskets stacked three high, two wide in this football-field-size pit. The men are here to find and dig up casket No. 40-3.

The backhoe churns up a layer of gray sand, a sign that the caskets are close. Already sweating in their hazmat suits, the workers climb 10 ft. down into the hole, shovels in their gloved hands. The grave is more than two months old. The smell seeps through their protective masks. As they dig, three coffins come into view, identifying numbers bored into the pine at one end. "Four-zero-dash-three," one of the men shouts over the noise of the diesel engine. They set about retrieving the box, and its occupant, from the anonymous earth.

Hart Island is a graveyard of last resort. Since 1869, New York City has owned and operated this potter's field—the largest in the country. City workers put unidentified or unclaimed corpses in simple wooden coffins, load them onto a ferry and entomb them in trenches across the island. The homeless, indigent and stillborn all lie within eyesight of the hyperkinetic, high-rolling inhabitants of the Manhattan skyscrapers across the water. "Hart Island is like a shadow of New York City," says Justin von Bujdoss, 45, the cemetery's chaplain. "It reflects the lives of people who live on the margins—the homeless, the sickly, the neglected, the forgotten and overworked." Over a century and a half, more than a million people have been buried in unmarked graves on the island, including from past epidemics like tuberculosis, the 1918 flu and AIDS.

"No one lives their lives believing it will end here," von Bujdoss says.

But nine months into the pandemic that has killed more than 250,000 Americans, one lesson is clear: no one escapes the virus. It infects paupers and Presidents alike. Even those who don't get it have been affected as the disease crushes economies, strains our health care system and pulls comfortable families back into hardship. Hart Island is once again reflecting this latest dark truth: many who thought they were immune to America's inequalities are vulnerable in this pandemic.

At the height of the outbreak last spring, New York's hospital morgues and mortuaries became overwhelmed, and the mass graves on Hart Island emerged as an expedient option for the city's fast-rising number of dead. More coffins were stacked aboard the ferry dispatched to the dock here. More trenches were dug. Through the end of October, 2,009 New Yorkers have been buried on Hart Island in 2020, more than double last year's total of 846.

No one knows how many of the people arriving here died of COVID-19. At points, the city was so overwhelmed that bodies were sent to the island before authorities had a chance to determine their cause of death or track down next of kin. Some families chose to have their loved ones buried here. Some families had no other option. And some families weren't aware their relative had died in the first place. "We figured that most of them would be disinterred because we were moving so quickly," says Alex Mahoney, 55, executive director of facilities at the city's department of correction (DOC), which oversees operations at the cemetery.

Not all of them were forgotten. Social workers, government employees and families have worked to identify people lost in the chaos of the COVID-19 crisis, and now, where once the ferry ride to Hart Island was usually a one-way crossing, dozens of those interred here this year are expected to make the trip back. So far, 32 bodies buried in 2020 have been claimed and removed from the graveyard.

As infections spike this fall, New York City is bracing for another wave of death. The coroner's office has once again readied the temporary morgues and box trucks that hold the dead before they head for the potter's field. In October alone, 360 corpses were buried on Hart Island, more than four times as many as in the same month last year. As they prepare for the next crisis, city officials anticipate more family members will come forward to exhume their loved ones.

No one knows who will be carried across the water to Hart Island on the next waves of the dead. No one knows who will be brought back from its anonymous earth by shovel-bearing workers in hazmat suits. This summer, TIME was granted unprecedented access to Hart Island to observe burial and exhumation operations and, on June 26, witnessed the retrieval and formal reburial of casket 40-3 and its occupant, Ellen F. Torron. This is her story.

THE FIRST SIGN of trouble came when tenants of the red brick Queens apartment building complained about a lingering smell on the fifth floor. Their calls went to Enis Radoncic, 43, a hardworking Bosnian immigrant, who is the building's porter. He thought it might be a plumbing problem and that it would dissipate. But it didn't.

Radoncic ultimately traced the stench to the unit next to the elevator, 5G, which belonged to Ellen Torron, a slight 74-year-old woman with short gray hair

Workers place pine caskets inside a mass grave on Hart Island while correction officers look on

and piercing dark brown eyes who had lived alone in the building for more than 20 years. She tended to shy away from small talk and appeared to be something of a germaphobe, covering her hands with surgeon's gloves and her face with a mask—even before the pandemic.

It didn't surprise Radoncic when she didn't answer his knocks at the door nor the letter he slid underneath it. But after calls to her cell phone went unanswered, he called the police. "We thought she barricaded herself inside because she was scared of the virus," Radoncic says.

At around 2 p.m. on March 16, Radoncic watched as a locksmith picked the nickel-plated dead bolt to allow New York police officers inside her apartment. The odor swept over them, forcing their hands to their noses. When the dull gray door swung open, it revealed a floor-to-ceiling mess inside the 800-sq.-ft. studio apartment.

Torron was a hoarder. Discarded Stouffer's microwave dinner boxes, empty SkinnyPop chip bags, mismatched suitcases, bags of trash, clothes, books, magazines and paperwork were tangled together, waist-high. The police pushed inside, following a narrow path carved among the thousands of things packed tightly from the front door to her twin bed and from there to her adjoining bathroom. In the bathtub, they found Torron's body under the murky water. She had been dead for days, possibly weeks.

Cable news droned away on her flat-screen television. The letter from building management remained unopened at the foot of the door. There were no signs of struggle or injury, and police ruled out foul play. After Radoncic identified Torron's bloated body, a transport team from the office of the chief medical examiner zipped her into a body bag and drove her in a black truck to the morgue at Queens Hospital Center.

No friends or family came forward to claim the remains. Radoncic and neighbors did not know of any spouse or children. The job of settling her estate fell to the Queens County public administrator, an obscure agency that identifies unclaimed persons' financial assets and next of kin. On a cursory look around the apartment, investigators found Torron's birth certificate. But the pandemic's crush of cases and enforced lockdowns prevented investigators from returning to her apartment to rummage for evidence of a burial plot, any life savings or a will.

So Torron's last wishes remained unknown as her body lay inside a refrigerated drawer at the morgue for the next 24 days. An autopsy determined her cause of death was arteriosclerotic cardiovascular disease. The medical examiner couldn't tell whether or not she had contracted COVID-19, but she died just as the disease was beginning to ravage New York City. In March and April, the death count mounted to more than 27,000, or six times the normal level, and the city's death care system was overwhelmed. The influx of corpses forced municipal morgues to free up space. With room running out, Torron's body was placed inside a pine box and prepared for passage to Hart Island.

JUST AFTER DAWN on April 9, a white box truck carrying Torron's body and 23 other dead New Yorkers rolled onto the 58-year-old steel ferry, the *Michael Cosgrove,* for the half-mile voyage from a fenced-off pier on City Island. It's a 10-minute trip. Once the boat makes its way across the water, it slows to a putter near the dock. Two crew members jump out and begin pulling steel chains that lower a short mechanical dock into place, inch by inch.

The truck lurches forward onto the island and turns east down a gravel road below a lane of willows, scattering a family of deer. It rumbles past crumbling, abandoned brick buildings once used to house a mental hospital, a tuberculosis sanitarium, a drug addicts' workhouse, a boys' reformatory and a host of other Dickensian operations since the Civil War. The cemetery run on the island has always been part of this place.

Potter's field is a biblical term from the New Testament that refers to land purchased by Jewish high priests with the 30 pieces of silver returned by a repentant Judas. The clay-heavy land was unsuitable for farming, so it would instead be used to bury "strangers." In New York City, these strangers have always been a cross section of America's downtrodden and overlooked: poor workers of all races and backgrounds, criminals, the mentally ill and any unidentified person with no one to claim them.

A cemetery, especially one with more than 1 million bodies, is a place where you would expect people to gather to celebrate many lives lived. Not here. Hart Island may be a rather easy place to reach if you're deceased but not if you're among the living. Family-member graveside visits are allowed only twice a month, require weeks of careful planning and must be authorized by the DOC, which for much of the past 151 years has been responsible for providing the labor and oversight for the burials at Hart Island.

The bodies are buried over 131 acres of rolling meadows. The only signs of the dead are 3-ft. white posts stuck in the ground every 25 yd. or so. Each marker signifies 150 bodies below, and they are everywhere on the island. Quiet reigns on Hart Island, except for the occasional jangle of a nearby bell buoy afloat in the water. Sailboats glide along in the distance. Seagulls wheel overhead and nibble atop rocks half submerged in the receding tide.

'Hart Island is like a shadow of New York City. No one lives their lives believing it will end here.'

—Justin von Bujdoss, Hart Island cemetery chaplain

Bones are sometimes found jutting from the coastline where erosion has washed away the soil.

Hart Island is a uniquely New York phenomenon. In other cities, the indigent are cremated or buried at a traditional cemetery. Here, they're buried together on an island inaccessible to most city residents. Although most New Yorkers are oblivious to its existence, Hart Island is a necessary by-product of a sprawling metropolis—not everyone can afford a formal funeral. And to people who oversee the graveyard, burial is a more sensible option than cremation. "What if someone is sent by mistake?" says Captain Martin Thompson, 59, of the city's DOC, who has overseen operations on Hart Island for 15 years. "You can't reverse a cremation."

When Torron arrived, COVID-19 was triggering the biggest shift in operations on the island in a century and a half. The week beginning April 6, 138 people were buried there as a result of COVID-19 because morgues were overfilled; at one point, the rate of burials went from roughly 25 a week to around 25 a day. "This trench was supposed to last us the whole year," Thompson says, looking over the mass grave. "Instead it was full within two months."

That same week, the city for the first time also stopped using incarcerated workers for Hart Island burials. An outbreak of the coronavirus among prisoners was ultimately passed to every correction officer on the island, including Thompson, who was ill for nearly two months. At first, the city tried to replace the inmate labor with city employees who normally fill potholes. That didn't work out. They were uncomfortable with the grim task.

Then the city turned to contract laborers. On the first day, there were 40 workers who showed up for work, not knowing what the job entailed. When they found out the task at hand, 28 people left. "The remaining guys have stuck around ever since," says Keron Pierre, 35, a laborer from Brooklyn. "We just have to try and think of it as any other job."

When the truck carrying the caskets pulls to a stop at the foot of the trench, the laborers hold back from assembling for prayer with the staff chaplain. That's when the reality of the day's task becomes most clear. With each delivery since the onset of the pandemic, von Bujdoss, the head chaplain from the DOC, climbs atop the truck's rear liftgate, stands over the coffins and reads out the names of those set to be buried, along with a Buddhist blessing and a few prayers. "Though I walk through the valley of the shadow of death, I will fear no evil: for thou art with me; thy rod and thy staff they comfort me,"

SATELLITE IMAGE VIA GOOGLE

he says, his voice resounding inside the cargo hold.

Once von Bujdoss concludes, the laborers emerge from a white and blue bus wearing hazmat suits, work gloves and protective masks. Some stay to off-load the truck while others plod into the trench. The first task is to write the names of the dead and their corresponding burial numbers in black chalk on the coffins' lids and sides. Then the burial numbers are bored into the wood with a router to ensure they can be identified as the chalk fades over time.

Two coffins are removed from the truck and placed on the front bucket of the skid-steer loader, then driven into the trench, where workers pull them off and force them into position, side by side in stacks of three. They fill the spaces between rows with shovelfuls of dirt. Correction officers dressed in crisp navy blue uniforms stand on the trench's rim, 10 ft. above the hole.

Torron is laid to rest at Mount Richmond Cemetery on Staten Island, more than two months after she died

ON JUNE 26, more than two months after Torron has been placed in Plot 401, the same team of workers stands near the grave, watching a black Grand Caravan approach from the end of the deserted gravel road. Behind it, the dust whips away like smoke. When the van arrives, funeral director James Donofrio steps out, smiling. "Good morning, Captain," he says in a Brooklyn accent, offering Thompson paperwork that shows he's authorized to take custody of Torron's exhumed coffin.

City investigators hadn't been able to thoroughly search Torron's apartment back in April, but they did happen to discover a birth certificate that showed she was born at the Jewish Maternity Hospital in Manhattan. The Queens County public administrator's office knew that was enough proof for Hebrew Free Burial Association (HFBA), a 132-year-old nonprofit that offers low-cost and free burial for indigent Jews.

Donofrio, 61, was sent by the association to

retrieve Torron's body. He came prepared. To guard against the stench, he brought a second casket, large enough to accommodate Torron's casket, which the workers lower into place. Then Donofrio spreads two 8.8-oz. packets of espresso coffee between the two. "If there's a better way to soak up the smell, I haven't seen it," he says. After the crew helps squeeze the oversize coffin into the van, Donofrio sets off on a 37-mile trip to the opposite side of the city to bury Torron for a second time.

As the Grand Caravan pulls under the arches of HFBA's Mount Richmond Cemetery on Staten Island, Donofrio is greeted by Rabbi Shmuel Plafker, 70, an Orthodox chaplain, who directs him to a squat one-story building nearby. Inside, Donofrio, Plafker and a group of men don head-to-toe protective gear, and Donofrio uses a power drill to remove the 12 screws holding the lids onto each of the two coffins. When the second lid is removed, Donofrio leaves the men to the ritual.

None of the men left behind in the sterile, windowless room had met Torron in life, none knew her religious convictions, and none have mortuary training. They voluntarily undertake the ceremony pursuant to Jewish law. Torron's corpse is stripped of clothes and dressed in eight separate pieces of white linen clothing, including a bonnet, shirt, pants, gown and belt. She's then placed back inside both coffins and secured with the screws and carried out the building feetfirst.

The men lift the coffin into the back of a flatbed truck and make the short walk to Torron's new burial plot, in Section 91 of the cemetery. The small group passes mounds of dirt piled atop freshly dug graves. They pass hundreds of tombstones, including 22 victims of the 1911 Triangle Shirtwaist Factory fire, Holocaust survivors and Soviet Union refugees who sought asylum in the U.S.

Nation

When they arrive at the empty grave, the workers from HFBA slowly lower Torron inside. Plafker, dressed in a cream-colored panama hat and gray suit jacket, opens a prayer book and begins reciting prayers in Yiddish:

Go in peace, rest in peace and arise to your lot at the end of days

May the omnipresent console you among the other mourners of Zion and Jerusalem

May they blossom forth from the city like grass of the earth

Remember that we are but dust

He throws a shovelful of soil into the grave. It lands on Torron's coffin with a thump.

ABOUT A MONTH after Torron was finally put to rest, Rhoda Fairman, 83, was at her West Village apartment when she spotted something on her kitchen table that took her breath away. A brochure from HFBA was open and facing up. Within the leaflet were the names of the 333 people the association had buried through the first six months of the year. "It's the way it fell on my table—second page up—that I was able to see Ellen's name," she says.

The two women had worked together for more two decades as legal secretaries at the high-powered Milberg law firm in Manhattan in the 1990s and 2000s but had fallen out of touch. Most of the other 20 or so secretaries from the firm had kept tabs on one another over the years through Facebook. Torron, however, never created an account. Fairman always wondered what had happened to her.

Not many people managed to get close to Torron, but Fairman did. They'd share lunch breaks, go out shopping or schedule occasional museum outings. They were together on 9/11 when they witnessed the second plane hit the south tower from the 49th-floor office of One Penn Plaza.

Torron was born in Manhattan on Jan. 19, 1946, the only child of Polish and Lithuanian immigrants. She had lived on her own since she was 18 years old, and in her 40s, she put herself through school, attending Hunter College and graduating in 1988 with a double major in English and classical studies. Fairman says Torron was the sort of woman who should've been born in another era because she'd likely have been a lawyer herself. "She was a victim of the times, honey," she says.

As far as Fairman or anyone knew, Torron never married. She claimed to have a daughter who lived in Brazil, but no one in the office ever met her or even saw a picture. "Ellen was a bit of a mystery," says Sanford Dumain, a lawyer for whom Torron worked for more than two decades, until her retirement in 2015. "I thought she might've been a Russian spy."

He was only half joking. Torron was seen as something of a loner around the office but also known to be intelligent and well traveled—though she also traveled alone. TIME joined Queens County public administrator investigators when they visited her unit in July. Amid the disorder, her bookcases were tidy and lined with shelf after shelf of language and travel books.

These items were of little interest to the two men hunting for clues on settling Torron's estate. To them, finding a will was more valuable than finding a suitcase of cash. Yet no will turned up. They resorted to requesting that the post office forward her mail, but nothing significant came in eight months. Torron received 401(k) returns, bank statements, a lot of junk mail, but not a single letter from family or friends. Nor was there a sign she had a daughter, despite what she had told co-workers.

Investigators did discover that Torron had a total of $56,148.85 in two Chase banking accounts and an estimated $2,560 worth of jewelry, including a pearl necklace, silver brooches and ruby-diamond earrings. By law, the Queens County public administrator's office must attempt to track down next of kin to distribute the estate. The only family that the public administrator has identified thus far are several first cousins once removed, the furthest relatives eligible to lay claim to an estate.

One of those cousins is Meryle Mishkin-Tank, a 56-year-old paralegal who lives in the San Francisco area. Not only has Mishkin-Tank never met Torron—she didn't even know she existed. Now most days after work and on weekends, she's trying to uncover details about Torron's life and death. She's learned of—and contacted—five new cousins and an aunt through genealogy research. "It doesn't sound like any of the cousins knew anything about Ellen," she says. "It's just sad."

Though she grew up in Manhattan, Mishkin-Tank didn't know much about Hart Island or Mount Richmond Cemetery, where Torron was buried in June. Through her research, however, she found that Torron's paternal grandfather, Zelman, and grandmother and likely namesake, Elka, are also buried at Mount Richmond. In fact, their graves are located a short walk away from their granddaughter's plot. —*With reporting by* CURRIE ENGEL/NEW YORK

COURTESY THE FINE FAMILY

Torron, then 18 (bottom row center), seated next to her father Benjamin at a cousin's bar mitzvah in 1964; her family discovered the photo after being contacted by TIME

After Torron's new grave in Staten Island is covered, a marker is placed as a temporary headstone

Wine arrives at the head office of his National Unity Platform party in a suburb of Kampala, on Aug. 31

PHOTOGRAPH BY RONALD KABUUBI

THE POPULIST AND THE STRONGMAN

Bobi Wine, Uganda's pop-star politician, wants a revolution

By Aryn Baker/Kampala

TO FIND THE MOST FAMOUS MUSICIAN IN UGANDA, SIMPLY PUNCH HIS NAME INTO UBER.

If you follow directions to Bobi Wine Residence or Bobi Wine Road, you'll eventually find yourself on a rutted mud track that winds through the remnants of an old banana plantation on the fringes of the Ugandan capital, Kampala. When TIME visits in September 2019, the man himself greets us at his front door. He is wearing boxing gloves.

Out of breath and sweating, Uganda's most unlikely presidential candidate proffers a fist bump and apologizes for a training session gone long. "I'm getting ready for Museveni," Wine jokes, referring to the country's current President. A onetime guerrilla leader, Yoweri Museveni has ruled the nation for more than three decades through a combination of deft politicking, questionable election practices and a ruthless use of force. Having done away with constitutionally mandated term limits and presidential age caps, the 76-year-old could conceivably rule for the rest of his life in a country where the vast majority of the population has known no other leader.

Now 38, Wine, an up-from-the-slums reggae sensation and political newcomer, is taking him on in the presidential election due to take place on Jan. 14. "The old man has been in power long enough," says Wine, who blames the President for the fact that more than 80% of Ugandans between 15 and 29 work informally, with little to no income, and no job security. "We are the generation that was created by Museveni's failures," says Wine, who was 3 years old when his rival first took power. "Poverty, no chance for a good education, growing up in the ghettos with no opportunities—this is all due to the lack of leadership and investment in our youth. Museveni's corruption is destroying our country's future."

Yet no matter how accurate the diagnosis, or how well received his message, Wine's quixotic campaign for the presidency of Uganda is a long shot, says Aili Mari Tripp, a professor of political science at the University of Wisconsin and author of *Museveni's Uganda: Paradoxes of Power in a Hybrid Regime*. "The playing field is not level, making it nearly impossible for any other candidate to win, no matter how popular." If anything, the upcoming election is a test of the limits of populism when stacked against the entrenched powers of dictatorship, cloaked in a facade of democracy.

As a musician, Wine can and does boast a massive following—calling him Uganda's answer to Jay-Z, he says rakishly, "is maybe understating it"—but as he attempts to translate that pop stardom into political power, he is putting himself in the ring with one of Africa's most wily leaders, in a nation where opposition politicians routinely risk jail, beatings and the occasional sudden and mysterious death. Even if Wine succeeds with his goal of creating a popular movement strong enough to unseat Museveni, he himself may not survive the process. "Museveni isn't going to hand over power on a silver platter to anyone," warns Helen Epstein, a professor of human rights at Bard College and the author of *Another Fine Mess: America, Uganda and the War on Terror*. "Uganda really is one of the most repressive countries in the world."

Which is why Wine is subjecting himself to a punishing bout of training with one of the nation's best boxers. As Wine ducks and jabs on the driveway of his stately colonnaded home, the coach urges him through "one more round" six more times. Finally, Wine—wiry, heavily tattooed, and clad in black tracksuit pants and a sweat-drenched T-shirt—collapses to the curb. "I don't intend to beat nobody," he says. "I'm making my body resistant to beating, to make sure I don't get so bruised when I take the blows."

It is wisdom born from experience. In August 2018, Wine was at a parliamentary campaign rally that turned violent. People started throwing stones, and government security forces opened fire, killing his driver. Wine was imprisoned, badly beaten and charged with treason. When TIME met him, Wine predicted things would get worse as the elections drew near: "The more scared the old man gets, the more he will lash out. People are going to be hurt, supporters will be targeted, people will be killed."

His words began to sound less like paranoia than like prophecy, on Nov. 18. After he was arrested by police for the second time in a month, his supporters set up a blockade and confronted police on the streets of Kampala. In the ensuing clashes, at least three people were killed and 38 injured. As TIME went to press, Wine was still in detention, leaving only a message to followers on his Twitter feed: "The price of freedom is high but we shall certainly overcome."

BORN ROBERT KYAGULANYI SSENTAMU to a onetime political family driven to penury for backing the wrong candidate, Wine was raised to avoid politics. He gravitated to music from a young age and began recording and performing sold-out concerts while an arts student at Kampala's prestigious Makerere University. His stage name is an homage to two of his musical idols, Bob Marley and Bobby Brown, and he chose Wine, he says,

PREVIOUS SPREAD: AP; THIS SPREAD: RONALD KABUUBI—AP

Uganda's Electoral Commission has banned public rallies during the 2021 election because of the coronavirus

because "I realized I was only getting better with age." He was 22 at the time.

While his early works were influenced by the weed and so-called ghetto-life swagger of late-'90s hip-hop (including virulently homophobic refrains that reflect widespread Ugandan prejudices), by 2010, he had started infusing his rollicking reggae beats with socially conscious messaging. In 2014, he was invited to tour in the U.K., but his visa was denied after human-rights groups protested his earlier homophobic lyrics. It was, he says, "a humbling moment. I realize now I should have been more tolerant and respectful to people that are different from me." Wine retracted his statements and apologized to Uganda's LGBT community, many of whom now back him. "He really has transformed," says Ambrose Barigye, an LGBT activist who fled Uganda in 2018 but who still follows the movement closely from exile. "Now the government is using it against him as propaganda, saying he is funded by the gay West," says Barigye.

In 2017, a parliamentarian in Wine's district stood down, and Wine saw an opportunity to amplify his call for social change by running for the seat. He won the election with 78% of the vote, despite the fact that he had no party and knew nothing about campaigning. He has since successfully campaigned for several other opposition candidates, subbing in star power where the substantial funds normally needed to win elections did not suffice. But his fame, onstage charisma and infectious songs laced with antigovernment slogans proved too threatening to the country's leadership. The government has banned his performances onstage and on air since 2018, depriving him of both a platform and an income. Figuring he had nothing left to lose, Wine decided to run against Museveni. "They weren't letting me be a musician, so I thought I might as well become a President," he says.

If elections in Uganda were based purely on popularity, he could yet succeed. Wine's campaign channels the frustration of the country's youth—78% of citizens are under the age of 30—and of Uganda's impoverished classes, who make up more than one-third of the population. The COVID-19 pandemic has only exacerbated the nation's economic inequalities, with 2020's GDP growth projected between 0.4% and 1.7%, compared with 5.6% in 2019. When Wine first started using his music to call for social justice, Museveni disparaged him as a "ghetto President." The name stuck. Supporters already address the singer as President, and *ghetto* has become a badge of pride not just for those who emerged from the same urban slum as Wine, but also for the underserved and ignored in a country where political power is more likely to enrich the powerful than improve the lives of anyone else. Vanity plates on Wine's Cadillac Escalade read GHETTO. Now that the sobriquet has expanded to include most Ugandans, the joke is on Museveni, says Atusingwize Jonan, a young presenter for the privately owned digital-media company Ghetto TV. "This is a guy who came from us, so he speaks for us. He knows what we all go through."

You only need to accompany Wine on a drive through the streets of Kampala to see how fervent his supporters are. Local residents holler his name. Old ladies on the back of motorcycle taxis cheer and wave. Shopkeepers raise clenched fists in solidarity. "People power!" Wine shouts. "Our power," they respond, completing his movement's name and slogan. Supporters drop 10,000- or 50,000-shilling ($3 or $15) notes through his open window, symbolic sums in a country where politicians often pay that much to get citizens to attend their rallies or, in some cases, vote for them.

Wine's face is instantly recognizable; so too is his movement's trademark red beret, with its logo of a raised black fist. He favors the slim black trousers, batik shirts and dark-framed glasses of the

international revolutionary intellectual. His bookshelves are lined with the biographies and manifestos of the world's liberation leaders, from Malcolm X to Che Guevara, Nelson Mandela and Martin Luther King Jr. When he speaks, it's clear he has digested them all, unconsciously regurgitating quotes from Bishop Desmond Tutu, Barack Obama or Malcolm X, sometimes in the same sentence.

The revolutionary rhetoric and pageantry appeal to a nation desperate for change, but they mask his campaign's hollow core. Wine is pushing for transformation, yet he has no platform, and bristles when asked about his policy plans. What he offers instead, he says, is a vision of what Uganda should be: "A country where there is no impunity. Where we are all equal before the law. Where everybody has opportunity regardless of their tribe or sect or background. Where institutions are supreme and respected."

THE POINT IS NOT that Wine wants to be President—he says he doesn't—but that the current President needs to go, and so far, no one else has been able to unseat him. "I look at myself as the most unqualified person for the role of President," Wine tells TIME over a lunch of tripe stew at a Kampala restaurant popular with government officials. "But God does not take the qualified; he qualifies the chosen one. What God has graced me with is the ability to rally Ugandans to own their own country. If we can do that, all I will need to do is be a good manager."

There are a few major obstacles to overcome first. Wine still faces charges of treason dating to the violent rally in August 2018, when his supporters allegedly threw stones at a government convoy, and he could be called to court at any time. (He denies the charge and says it is politically motivated.) Last year, the government banned civilian use of the red beret worn by members of Wine's People Power movement. In July, Uganda's Electoral Commission, while officially independent, refused to register Wine's movement as a political party—an essential designation for contesting elections.

Wine circumvented the ruling by aligning with a small established party that had already registered. Then the party voted to change its name, and elected him as leader. "As soon as the President learned I had managed to register a political party despite his best efforts, he fired the top officials of the Electoral Commission," Wine cackles over the telephone in early October. "I ducked his punch, and punched back harder." Museveni said on Twitter that the officials were fired because of "corruption." (Despite several requests, Museveni's office declined to speak with TIME on the issue of Wine's campaign or the upcoming elections.)

And as elections approach, there are signs that Museveni may be preparing for further crackdowns. Citing the risk of COVID-19, the Electoral Commission has prohibited public rallies in favor of TV and radio campaigning. Yet few TV and radio stations will host Wine, for fear of contravening a long-standing ban. When he does manage to make an appearance, the broadcasting station is usually raided within moments.

Wine's biggest fear, however, is an assassination attempt. In order to make sure his meal of tripe stew would not be poisoned, Wine had sent a couple of staffers to the restaurant to order, while he idled in his car around the corner. As soon as the food arrived, the staffers called him, and only then did he and his entourage come in to take their places around the table. "Museveni will use every trick in the book to make sure I am not a threat during the elections," says Wine. So why does he risk eating in a pro-government venue? Wine grins mischievously and jerks his chin at a nearby table, where a couple of government officials are hastily abandoning a half-completed meal in an effort to avoid being seen in the same restaurant as Museveni's rival. Everyone

At his rallies, Wine adopts the language and stagecraft of Black liberation leaders

ISAAC KASAMANI—AFP/GETTY IMAGES

else clamors for selfies. Wine takes his victories where he can find them.

Many Ugandans expect that the election will be rigged, but even without interference, Museveni would be tough to beat. After helping oust the military despot Idi Amin and overthrowing his successor, Museveni came to power in 1986 promising democracy, the elimination of corruption and an end to inequality. At the time, he was celebrated by the West as part of a new generation of African leaders, and he still enjoys significant popular support despite his antidemocratic tendencies. He belongs to the more modern iteration of strongman, keeping himself in power (and compensated well for it) while also bringing in just enough reforms and investment to ensure a placid population. Though most Ugandans agree that it is time for a change in leadership, the urban elite who have managed to build a stable life despite, or even because of, the ruling party's deeply entrenched patronage networks fear disruption. "Museveni is a dictator, and it's not right how he is staying in power. But I would rather have Museveni and be safe and stable than risk the chaos of Bobi Wine," says 26-year-old interior designer Patricia. (Like most Ugandans fearful of speaking against the President, she asked to use only her first name.)

And while corruption is rampant, it has trickled down so far that no one entity can be punished at the polls for the country's dysfunction. Few politicians are trusted, whether in government or the opposition. The cynicism is fed by a wildly partisan press that only gets called to account when it impugns government officials. As a result, most Ugandans have given up any expectation of good leadership, says Simon Osborn, a consultant formerly of the National Democratic Institute (NDI), a Washington, D.C.–based NGO.

Largely because of the efforts of organizations like the NDI, some tactics of electoral manipulation have ended, says Osborn, who is now a technical adviser to the E.U. delegation in Uganda. That doesn't mean the vote reflects the true will of the people, he cautions. "The days of ballot-box stuffing and violence at the polls are largely over. The alternative is money. And so far, that seems to work."

Ugandans call it the commercialization of politics, where voting is a transaction, not a choice. "Increasingly more and more people are expecting to be paid to go to rallies, to vote, and to vote accordingly," says Osborn. "And Bobi doesn't have the money to do that."

NOT ALL OF UGANDA'S young voters are convinced that Wine is up to the challenge of leading the country in a new direction. Samantha, a 22-year-old university student, acknowledges that Wine is a powerful voice for Uganda's disadvantaged youth, "but not all of us are in that category." Just because Wine's music was the soundtrack to her childhood doesn't mean he would be a good President, she says. "He shaved his dreadlocks, but we still know him as the reggae musician, the weed smoker. Can we trust him?"

Wine dismisses the criticism as government propaganda designed to discredit his campaign among the nation's elite and conservative classes. He is fighting for accountable leadership to benefit all Ugandans, he says. "This is about all of us, the young, the professionals, the lawyers, the doctors, my auntie who lives in the village, the young man that drives a *boda boda* [motorcycle taxi]. If we unite to save the country, it will be for all of us." And despite the throngs of supporters who descend upon his car at intersections, the proliferation of T-shirts proclaiming IN BOBI WE TRUST and the ecstatic crowds at his political rallies, Wine wants it known that the campaign is not about him; it is about change. "If we make it about me, Museveni would only have to eliminate me, imprison me, to bring the revolution to an end."

'I CAN'T LET UGANDANS DOWN NOW. I CAN'T LET THEM SUFFER IN SILENCE WHEN I HAVE THE LOUDEST VOICE.'

Wine has everything he ever dreamed of as a kid growing up in the slums of Kampala: a brilliant wife who is a celebrity in her own right, four kids, riches from his career in music, fame, respect and the adulation of the entire country. Why is he risking it all on a quixotic campaign that already nearly took his life? "You mean, why don't I just let the voiceless Ugandans die, why don't I just let them suffer?" he volleys back, waving his boxing-gloved fist to take in the manicured lawn, the Escalade parked behind him, his new Nikes. "Look at the car I drive, look at the glamour I live in. I am all this and more because Uganda loved me. So I can't let Ugandans down now. I can't let them suffer in silence when I have the loudest voice." He jumps to his feet and launches into full campaign mode. "This is a campaign to put an end to dictatorship, and we are either going to succeed or die trying." Pacing and speechifying before an audience of one, Wine sounds like he's issuing less a prediction than a dare. He pulls off his gloves and goes inside to freshen up for the battle to come. —*With reporting by* MADELINE ROACHE/LONDON

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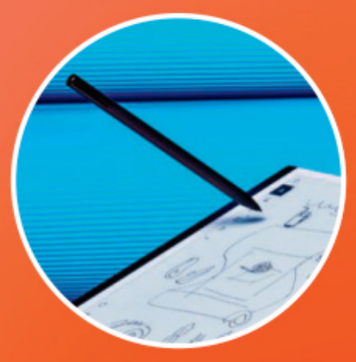
THE 100 BEST INVENTIONS OF 2020



Each year, TIME highlights inventions that are making the world better, smarter and even a bit more fun. For 2020's list, we solicited nominations both from our editors and correspondents around the world and through an online application process. We then evaluated them on factors including originality, effectiveness, ambition and impact. Our results: everything from a smarter beehive to a greener tube of toothpaste to the technology that could catalyze a COVID-19 vaccine.

PHOTOGRAPHS BY JESSICA PETTWAY FOR TIME

OUTDOORS

LIGHT UP THE CAMPSITE

Yakima CBX Solar

A camping trip no longer means going completely off the grid with Yakima's new CBX Solar rooftop cargo box. Topped with durable Sunflare solar panels, the $1,299 carrier is equipped with two USB ports and can power your campsite on an overnight trip or keep your devices charged—without having to use your car battery. "We were seeing people add solar panels to their cargo boxes, and wanted one that looked a little more polished," says Evan Hampton, Yakima's senior category manager. "It gives you a way to power your Bluetooth speaker at a trailhead before or after a hike or après-ski at the parking lot of a resort." Plus, with 16 cu. ft. of storage space, the CBX Solar has more than enough room to hold your skis, snowboards, hiking gear or that last duffel you can never quite manage to squeeze into the trunk.
—SIMMONE SHAH

HOUSEHOLD

THE ULTIMATE INDOOR GARDEN

Gardyn

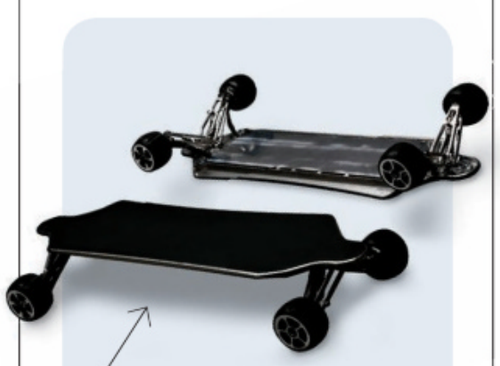
If you want a garden but lack a backyard, consider a Gardyn instead. The AI-powered vertical indoor-growing system lets you choose from 32 fruits, vegetables, greens, herbs and flowers that will ripen right in your living room. Load the seedpods into Gardyn ($799, with an additional monthly fee for membership and seed delivery), and its companion app monitors light, humidity and soil saturation, keeping tabs on growth via cameras to let you know when the crops are ready. Getting kids to eat a salad is a lot easier when they harvest the greens themselves, so feel free to ask them to chip in and help nurture your new garden: founder FX Rouxel made Gardyn with parents (and the family dinner table) in mind. —MARJORIE KORN

TRANSPORTATION

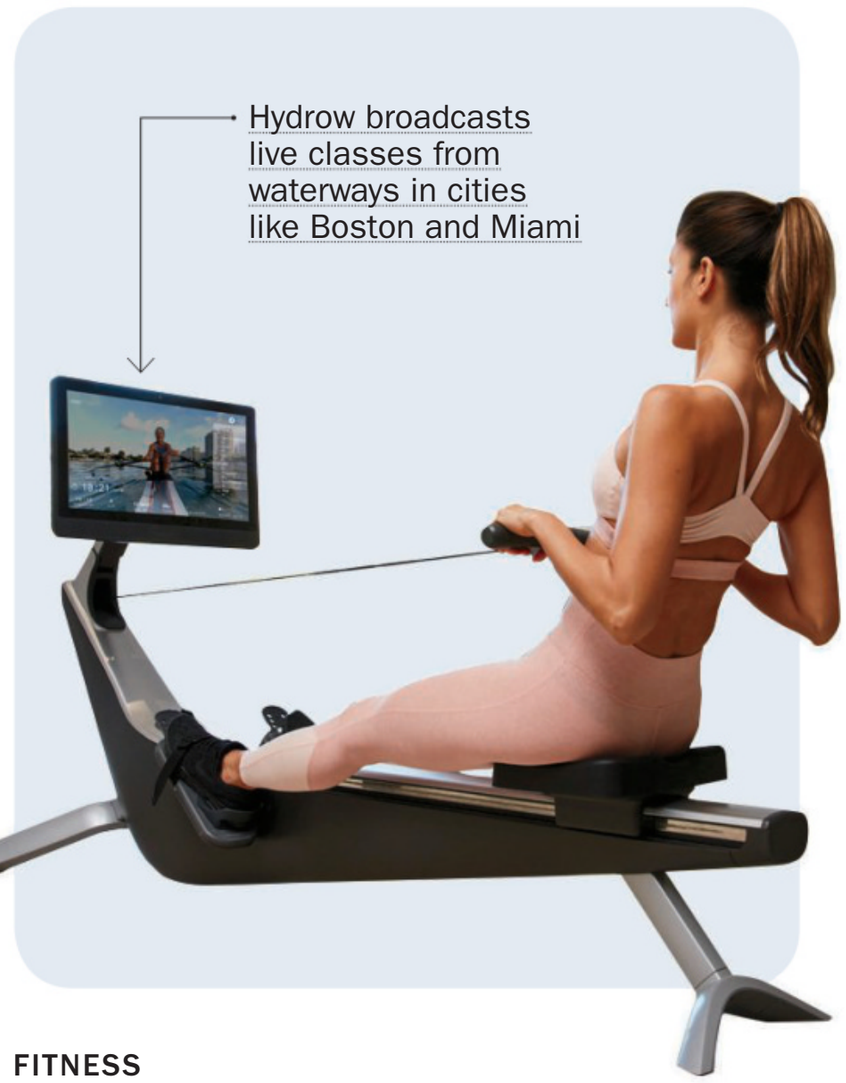
A SMOOTHER SKATE

Hunter Board

Electric skateboards do not lack for speed—but turn onto a bumpy road, and a smooth ride can fast become a smooth face-plant onto the sidewalk. Thanks to an independent suspension system, which helps absorb vibrations before they reach your feet, the Hunter Board ($1,949) makes even bumpy cobblestones light work. "In the end, that translates into confidence," says Pedro Andrade, Hunter's CEO. With a pair of motors that can hit speeds of up to 34 m.p.h. and a battery designed for replacement on extra-long rides, the board's extra stability comes in handy.
—PATRICK LUCAS AUSTIN



The Hunter Board is currently sold out—but deposits are being taken for 2021 purchases



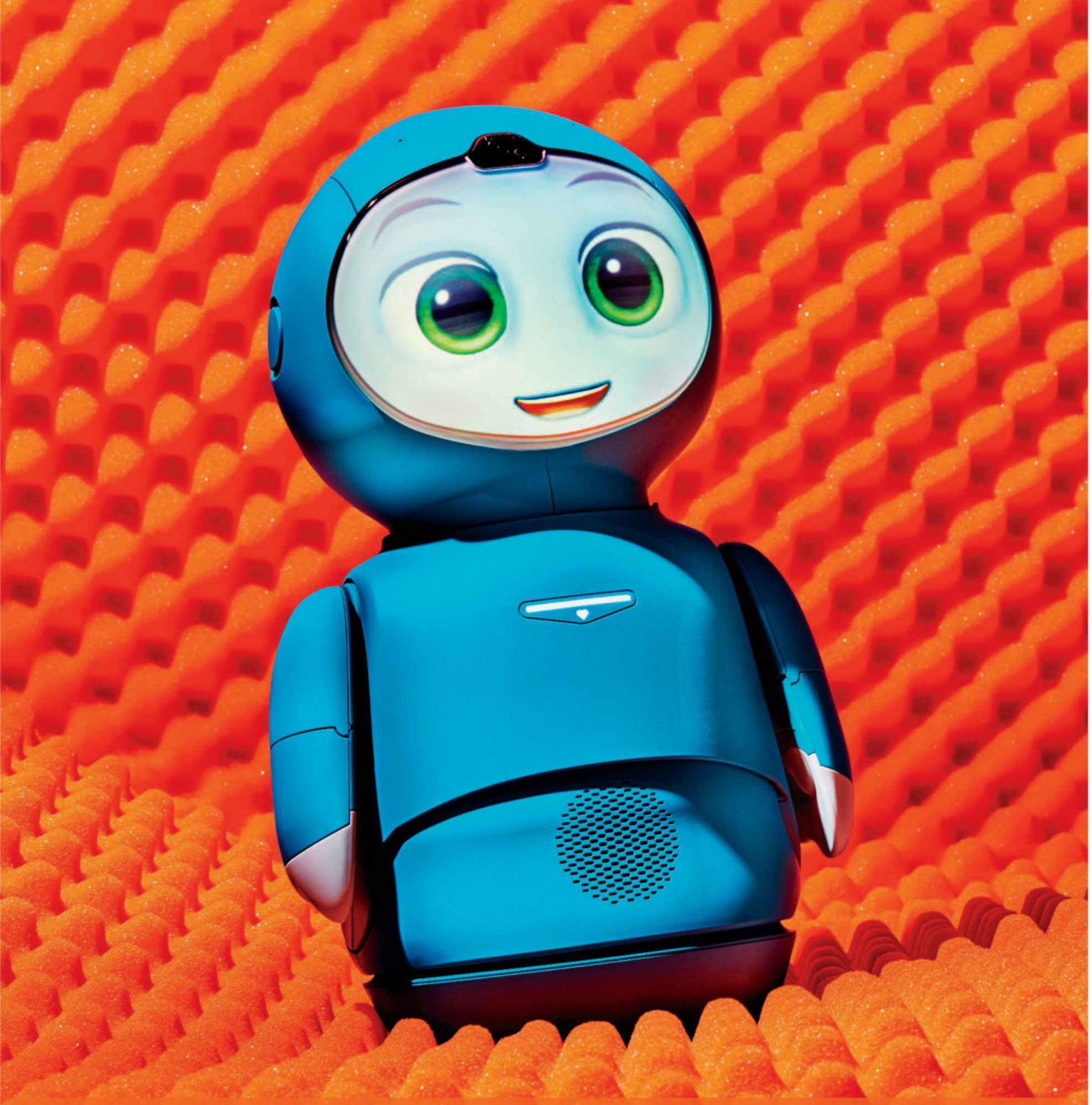
FITNESS

ROWING WITH A ROUTER

Hydrow

Call it the Peloton of the pond. Hydrow combines a burly electromagnetic-resistance rowing machine with a 22-in. touchscreen and a web connection. That allows home scullers to train with real-life instructors and teams all over the planet, with interactive workouts set in famed bodies of water—from the Charles to the Thames. Boston-based rowing coach and entrepreneur Bruce Smith dreamed up the Hydrow in 2018, intending to bring onto dry land the feeling of rhythm and synchronicity that you experience rowing with a team. The recent fervor for at-home workouts has provided Hydrow with a tailwind: sales of the machine, which retails for $2,245, surged some 400% from January to April. —JESSE WILL

IMAGES OF PRODUCTS COURTESY BEST INVENTIONS COMPANIES



ARTIFICIAL INTELLIGENCE

A SKILL-BUILDING ROBOT

Embodied Moxie

Don't let the cutting-edge AI and robotics fool you—Moxie is more like a *Mister Rogers' Neighborhood* character than HAL. Created by vets of the children's show as well as Pixar, Jim Henson Productions, and experts in education and child development, the robot is designed to help boost the social and emotional skills of 5- to 10-year-olds. In Moxie ($1,699), children find a compassionate pal who encourages reading and drawing, and sends them on missions meant to spur engagement with adults, siblings and peers, such as writing kind notes for their family to find or talking to a friend about feelings. Paolo Pirjanian, CEO and founder of Embodied, Moxie's creator, says it is intended to offer "a springboard into the real world." —MARJORIE KORN

CONSUMER ELECTRONICS

A GLIMPSE OF THE GALAXY

Miller Engineering Dark Skys DS-1 Planetarium

A few years ago, Christopher Miller lamented that home planetariums couldn't come close to the beauty of the night sky. So he set out to make a more detailed model. The result: the DS-1 ($580), which can project 4.1 million stars onto your bedroom ceiling via a chrome-on-glass disc. (Most other home units project hundreds of thousands of stars.) As 2020 unwound, Miller noticed that DS-1 customers were not only astro-geeks, but also families looking for an interstellar escape from the year's challenges. "We're bringing back the night sky," he says—and the wonder that comes with it. —JESSE WILL

BEAUTY

A CUSTOM LOOK

L'Oréal Perso

When it comes to beauty, there's no one-size-fits-all—which is why L'Oréal created the Perso, a smart dispenser that blends lipstick, foundation and skin-care formulas tailored to individual users. Simply log on to the device's app and upload a selfie, which the app's algorithm will evaluate for common skin concerns like dark spots, wrinkles and blemishes. For skin-care formulas, the app will also factor in environmental conditions like humidity and sun exposure before the product requested by the user is mixed and dispensed from the device. The Perso, which will debut in 2021 for $200 to $300, uses interchangeable cartridges to blend its products, meaning users can toggle with ease between mixing either skin care or makeup. —CADY LANG

PRODUCTIVITY

THE SMART HARD HAT

Guardhat HC1 Communicator

For centuries, the humble hard hat has protected workers from head injuries. But industrial workers also face other dangers at work sites, where heavy machinery, confined spaces and hazardous materials can lead to injuries and even deaths. Guardhat's new tech-enabled hard hat, the HC1 Communicator, can help keep those workers safe. The Communicator monitors the wearer's location in real time; allows them to make hands-free video and audio calls; and detects their proximity to hazardous materials, temperatures and moving equipment. Starting at $1,500, the high-tech hat isn't cheap—but for teams looking to feel more secure while hard at work, it may be well worth it. —MARIAH ESPADA

ARTIFICIAL INTELLIGENCE

BUILT FOR THE CLIMATE

BrainBox AI

Five years ago, advances in autonomous cars inspired the founders of BrainBox AI to pursue a related goal: autonomous buildings. The company's AI system uses data like weather forecasts to predict a building's thermal conditions, then adjusts its AC or heating output accordingly. Launched last year, the technology now controls temperatures for more than 40 million sq. ft. of building space, helping reduce carbon footprints by as much as 20% to 40%. —ALEJANDRO DE LA GARZA

BEAUTY

A MADE-TO-ORDER MANICURE

ManiMe

Professional gel manicures typically mean longer-lasting and chip-proof paint jobs, but they can also entail spending an hour at a salon, a time-consuming process that can seem especially daunting in the midst of a pandemic. What if you could get the same results while at home? That's the promise of ManiMe. Users upload photos of their nails to the company's website, which uses 3-D modeling technology to create made-to-order gel-polish stickers to fit their nail beds. To get the manicure, just peel off the sticker, press it onto your nail, then file away any excess. That's it—no drying time and no smudging. Each manicure is meant to last two weeks; when you're ready for the next one, simply peel off the sticker. Sets start at $15.

—CADY LANG

FOOD & DRINK

A SUSTAINABLE SUBSTITUTE

Impossible Pork

The world's most-consumed animal protein is pork—and its farming results in a slew of environmental issues, including pollution due to swine waste. Impossible Foods, which wowed the world with its rendition of a burger in 2015, aims to tackle these issues with a plant-based pork substitute, Impossible Pork. Previewed at CES 2020, Impossible Pork is made from soy and said to taste uncannily like the real deal. While the favorable environmental impacts of a pork alternative are clear, plans for a commercial rollout of Impossible Pork are still in the works.

—NADIA SULEMAN

AR & VR

AR-GUIDED SURGERY

Augmedics xvision

It all started when Augmedics CEO Nissan Elimelech got a superhero-inspired idea: Wouldn't it be cool if surgeons had X-ray vision? Several years of R&D produced the next best thing: xvision, a headset that uses augmented reality to turn a patient's CT scan into a 3-D visualization that helps guide a spinal surgeon through operations in which every millimeter counts. The headset superimposes a 3-D image of a patient's spine over their body, allowing surgeons to (almost) see what's under the skin without ever looking away from the operating table. Cleared by the FDA in December 2019, the device is already in use at top U.S. hospitals like Johns Hopkins and Rush University Medical Center.

—JAMIE DUCHARME

CONSUMER ELECTRONICS

KID-PROOF STORAGE

KEEP

Philip Wilkins has used cannabis to treat his epilepsy ever since it became federally legal in his home country of Canada. But with three kids under the age of 5, Wilkins worried about how to store his medicine so his kids couldn't find it. So he created KEEP, the first smart-storage device specifically designed for cannabis and prescription medicine. The device ($249) is biometrically locked and connected to an app on your phone, which will alert you if someone tries to open it. KEEP also features temperature and humidity controls, and a hermetic seal. With a sleek, discreet design, KEEP hides in plain sight. "People don't want to feel like they're 17 in their parents' basement," Wilkins says. "They're adults."

—MADELEINE CARLISLE

DESIGN

A NEXT-GEN TAMPON

Callaly Tampliner

From menstrual cups to period panties, a slew of inventions have emerged to provide women with period-care options to fit their flow. But one ubiquitous design has barely changed at all since it was patented more than eight decades ago: the tampon. Now there's Callaly's Tampliner. Developed by a gynecologist and garment technologist, it's a hybrid tampon and panty liner that streamlines an inconvenience 7 out of 10 women otherwise face—needing two separate products to prevent leakage. What's more, a self-wrapping feature folds the used tampon into the attached liner upon removal, for a less messy experience. The product is currently available in the U.K., Ireland and Sweden; the company expects that to expand as the product wins regulatory approval elsewhere.
—NADIA SULEMAN

MEDICAL CARE

FASTER DEVELOPMENT

mRNA Vaccines

A pandemic may be a tough time to test a new technology, but that's exactly what COVID-19 vaccine experts are doing, with encouraging results. Two of the first shots that could be injected into people's arms as early as December, from Pfizer and Moderna, rely on a new technology based on a genetic material called mRNA. This method is both fast and flexible; vaccine makers don't need to grow or manipulate the COVID-19 virus—all they need is its genetic sequence. That efficiency led to shots that are more than 90% effective in protecting against COVID-19, which were developed and tested in record time.
—ALICE PARK

ENTERTAINMENT

THE VERTICAL TV

Samsung Sero

The Sero ($1,499) isn't like most other televisions you've seen before, and that might be because Samsung didn't design it with just TV viewers in mind. The 43-in. TV pivots from a horizontal to a vertical orientation with a click of the remote. Its design is optimized to accommodate social media posts, streaming services and gaming—the kind of content you may be more familiar with viewing in vertical formats on your phone. The Sero also has optional wheels, so it can be moved around the house.
—AMY GUNIA

ENTERTAINMENT

A BIG UPGRADE FOR GAMERS

Microsoft Xbox Series S

The tech giant's new video console is more than just a next-gen gaming device—it's the basis for what could become the Netflix of video games. The Series S's secret weapon is Game Pass: a subscription service where new hits like *Assassin's Creed Valhalla* and *Halo Infinite* will appear the same day as their traditional release. And those games will look even sharper—the Series S ($299) can run high-resolution games at 120 frames per second, a 100% increase over its predecessor, the Xbox One. What's more, because there is no disc drive, the Series S operates almost silently, making it all the easier to concentrate on the action. —MATTHEW GAULT

ILLUSTRATION BY CHRIS PHILPOT FOR TIME

DESIGN

A GREENER RUNNING SHOE

Allbirds Tree Dasher

Running shoes are incredibly wasteful, relying heavily on oil-based synthetics like plastic. The Allbirds Tree Dasher is made almost entirely from natural materials, with a carbon footprint estimated at almost a third lower than that of the average sneaker. But using eucalyptus, merino wool, castor-bean oil and sugarcane isn't just about "stuffing nature into a performance shoe and hoping that it doesn't degrade the performance," says Jad Finck, Allbirds' vice president of innovation and sustainability. Instead, these materials actually boost performance: the eucalyptus fibers are cooling, the wool regulates temperature, and the sugarcane midsole provides performance cushioning. And while the Tree Dasher is not meant for marathons, the shoes—priced at $125—are well suited for a weekend jog or a morning dash to the grocery store. —SANYA MANSOOR

BEAUTY

A GENTLER STRAIGHTENER

Dyson Corrale

Most hair-straightening irons work by clamping hair between two burning-hot plates and pressing it into submission—often causing irreparable damage to the strands. Leave it to Dyson to create a solution as functional as it is elegant. The Corrale ($499.99 at Dyson.com) uses flexing plates that move with the hair as it straightens, styling more quickly with less heat. "We discovered that if the plates could conform to the precise profile of the tress, then with each pass we could apply the correct tension to all the hair strands," says Sir James Dyson, the company's founder. Moreover, a sensor system regulates the temperature of the plates 100 times a second, so there's never undue heat. —CADY LANG

SOCIAL GOOD

THE SUSTAINABLE SMARTPHONE

Fairphone 3+

Some 50 million tons of electronic waste is created each year, much of it composed of elements that were unethically sourced in the first place. (One example: gold, found in circuit boards, is often mined under dangerous conditions.) In contrast, Dutch company Fairphone makes phones using minerals from conflict-free zones, sourced via more responsible supply chains. The phones are also built to stay out of landfills as long as possible. Made of 40% recycled plastic, the new Fairphone 3+ (€469, or roughly $554) has replaceable parts and an expected life span of five years. Its repair-friendly design lets you swap your battery or screen, or even upgrade your camera's quality with just a screwdriver, encouraging users to hang on to their devices longer. —PATRICK LUCAS AUSTIN

SUSTAINABILITY

A COOL NEW TUBE

Tom's of Maine Recyclable Tube

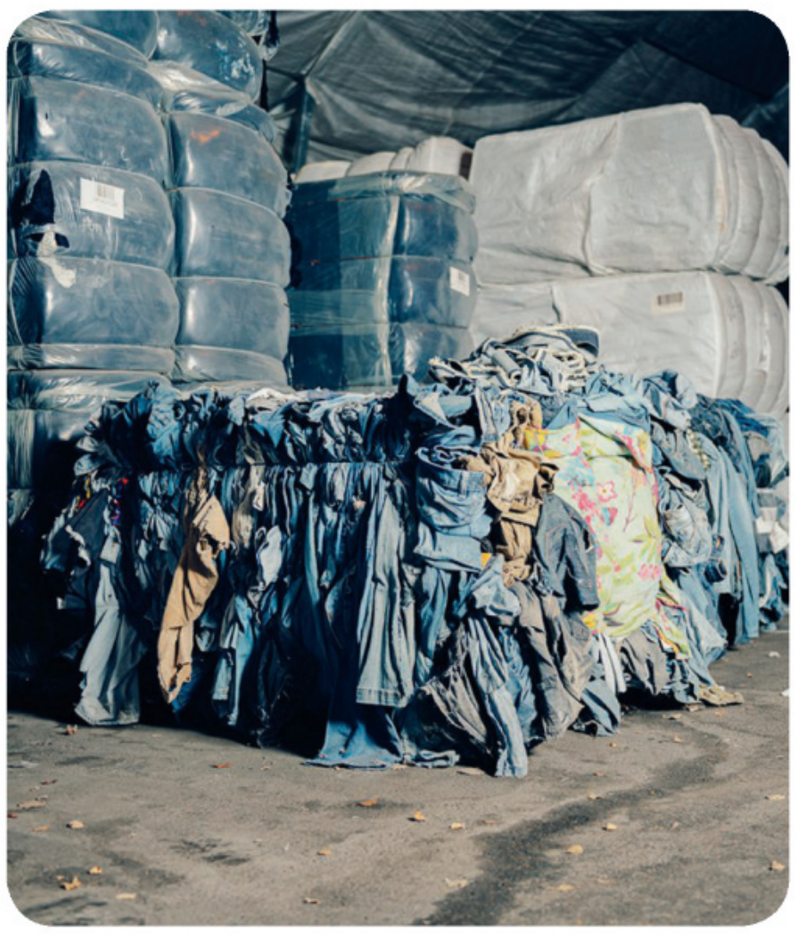
Sometimes little things can make a big difference. Consider the humble tube of toothpaste: Americans throw out more than a billion of them a year. And since most are made of sheets of plastic and aluminum, they can be difficult to recycle. Tom's of Maine's new recyclable tube is the first to use several grades of high-density polyethylene—the same stuff used to make recyclable plastic bottles. Parent company Colgate-Palmolive plans to incorporate the design more widely among its brands and will share its approach with other manufacturers, in hopes that recyclable tubes become an industry standard.
—SIMMONE SHAH

STYLE

CLOTHES MADE OUT OF CLOTHES

Renewcell Circulose

Each year, some 85% of all textiles are sent to landfills. Sweden-based Renewcell is tackling that problem with Circulose, a natural and biodegradable raw material made by recovering cotton from worn-out clothes. The process—powered by renewable energy—uses eco-friendly chemicals to break down and strip color from incoming fabrics that might otherwise be discarded. Then, synthetic fibers are removed, leaving behind a sheet of cellulose pulp, which can be turned into like-new textile fibers that are ready to be woven into fresh fabric. In the spring, H&M became the first retailer to sell clothes made from Circulose fabric, with Levi's following close behind. —MEGAN MCCLUSKEY



FINANCE

FREE FILING

Upsolve

Filing for personal bankruptcy can help people get back on their financial feet—although the process can be pricey. "The cruel irony in America is that it can cost $1,500 in court filing and attorney fees to tell the court you have no money," says Rohan Pavuluri, the founder of tech nonprofit Upsolve. Upsolve's software fixes that, helping users complete the complex legal paperwork so that they can file for bankruptcy without hiring a lawyer. Since launching in 2018, the free service has helped relieve more than $250 million in total debt nationwide.
—MARIAH ESPADA

FOOD & DRINK

VODKA, OUT OF THIN AIR

Air Vodka

For centuries, vodka has been made by fermenting grains like corn and wheat, a process that naturally results in carbon emissions. The Brooklyn-based startup Air Co. thinks it's found a better way, distilling the spirit from nothing more than water and carbon dioxide, in a process that transforms the CO_2 into ethyl alcohol. Not only does Air Vodka (starting at $65 for 750 ml) do the trick in a Moscow mule, but it's also carbon negative: for every bottle that's produced, the company's NASA-award-winning technology removes about a pound of carbon dioxide from the atmosphere. —NADIA SULEMAN

In 2020, the company collected more than 15,000 phones through its recycling program—just one part of its strategy

ILLUSTRATION BY CHRIS PHILPOT FOR TIME

CONSUMER ELECTRONICS

THE NEXT-LEVEL ACTION CAM

Insta360 One R

Think of the One R ($479) as an action camera you can customize. Its secret sauce lies in its modular nature, making it adaptable for capturing breathtaking action—from biking to basketball—as well as more pedestrian images and video. In addition to the two available lenses, a 360-degree lens and a 4K ultra-wide-angle lens, Insta360 has partnered with companies like Barebones and Leica to create an array of swappable camera modules and lens mounts. And with its machine-learning software combined with constant updates—adding features like improved editing tools and the "invisible selfie stick" function, which edits the stick from view—the One R should last as long as you need it. —PATRICK LUCAS AUSTIN

SOCIAL GOOD

4G FLEET

Loon

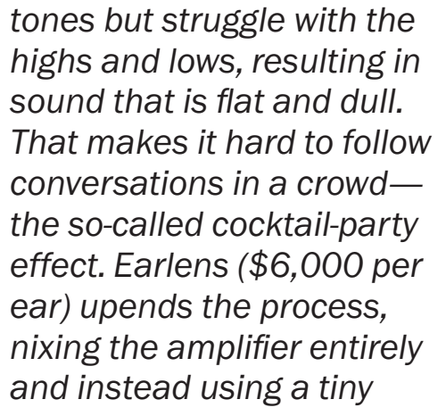
Originally a Google "moonshot" project conceived in 2011, Alphabet subsidiary Loon aims to extend Internet access to underserved locales by deploying a network of giant stratospheric balloons. Those balloons—each the size of a tennis court—previously floated above Puerto Rico in the wake of Hurricanes Irma and Maria and above Peru after the 2019 earthquake. But this summer marked the project's first commercial deployment. In partnership with local provider Telkom Kenya, Loon's network of dozens of balloons now beam 4G Internet across more than 30,000 sq. mi. of central and western Kenya—making web browsing, email and text more accessible to those below. —JOSEPH HINCKS

MEDICAL CARE

A PERSONAL BUBBLE

Under the Weather IntubationPod

When Rick Pescovitz, CEO of Under the Weather, designed his first personal plastic bubble to protect from the elements, he thought, Who in the world would wear this thing? Then the pandemic hit, and the semi-enclosed space that the pods create found a new, all-weather purpose: protecting frontline workers. Hospitals use the IntubationPod ($69–$99), which covers the wearer's head and shoulders, to shield both patients and workers during medical procedures, while longer versions, which have openings for the arms and extend to the hips or beyond, appeal to teachers and police officers. —ALICE PARK



ACCESSIBILITY

MIMICKING SOUND WAVES

Earlens Contact Hearing Solution

Most hearing aids do a decent job of amplifying mid tones but struggle with the highs and lows, resulting in sound that is flat and dull. That makes it hard to follow conversations in a crowd—the so-called cocktail-party effect. Earlens ($6,000 per ear) upends the process, nixing the amplifier entirely and instead using a tiny lens that sits next to the eardrum. A microphone housed in the device's over-the-ear processor picks up sounds, which an algorithm converts into vibrations that are transmitted to the eardrum. Put another way: rather than turning up the sound, Earlens actually re-creates the effect of the sound waves. —MARJORIE KORN

MEDICAL CARE

AT-HOME SAMPLING

OraSure OMNIgene Oral

OraSure is helping make COVID-19 testing—and quick results—more accessible. The company received among the first emergency-use authorizations from the FDA for an at-home COVID-19 sample-collection kit. Instead of going to a health professional and having a swab thrust up their noses, users spit into the OMNIgene Oral collection tube and send it to a lab, which then turns around the results in a day or two. Such collection kits, which anyone can order online, could vastly expand the reach of COVID-19 testing. —ALICE PARK

EXPERIMENTAL

A NEW KIND OF INTERFACE

MIT Media Lab AlterEgo

AlterEgo doesn't read your thoughts, but it can enable you to communicate with your computer without touching a keyboard or opening your mouth. To use the headset to carry out a simple task like Googling the weather on your laptop, first formulate the query in your mind. The headset's sensors read the signals that formulation sends from your brain to areas you'd trigger if you had said the query aloud, like the back of your tongue and palate. Then, via a web connection, the device, designed by researchers at the MIT Media Lab, carries out the task on your laptop. To inform you of the results of the task, the headset uses a bone conduction speaker that only you can hear. Researchers found that the device's prototype was able to understand its wearer 92% of the time. The interface is currently being tested in limited hospital settings, where it helps patients with multiple sclerosis and ALS to communicate. —JASON CIPRIANI

This exoskeleton may look like it's from a faraway future, but it's actually been in development for two decades

PRODUCTIVITY

THE ROBOT SUIT

Sarcos Robotics Guardian XO Full-Body Powered Exoskeleton

Decades after RoboCop *filled moviegoers' heads with cyborg-suit fantasies, science has finally delivered: next year, the Salt Lake City firm Sarcos Robotics will release the Guardian XO—one of the first commercially available full-body powered exoskeletons ($8,500 monthly lease). The exoskeleton—an earlier iteration of which was recognized in TIME's 2010 list of Best Inventions—is effectively a wearable robot shell that enables wearers to lift as much as 200 lb. It's designed to prevent on-the-job injuries by reducing the strain of manual labor, and boasts as much as six hours of battery life.*
—J.R. SULLIVAN

OUTDOORS

A BIODEGRADABLE GRILL

CasusGrill

Disposable foil grills may be fun for BBQ sessions on the fly, but they wreak havoc on the environment. The cardboard, bamboo and lava-stone CasusGrill ($20), on the other hand, is fully biodegradable. The single-use grill is the brainchild of Carsten Nygaard Brogger, who created the device and perfected its unusual flame-free bamboo charcoal in his Copenhagen kitchen. Light four corners of the briquette grid and the coals will smolder, ashing over within minutes and hitting 600°F without a blaze. After its 60-minute cooking time is up, simply dig a hole and bury the Casus. Your memories of a picnic will linger longer than the grill does underground.
—JESSE WILL

DESIGN

HIGH-END LIGHTS FOR LESS

Ammunition x Gantri 3-D printed lights

Lustworthy high-end lighting is often out of reach for the typical consumer. Leading design shop Ammunition and designer-lighting company Gantri have teamed up to change that, with a line of stunning table, floor and wall-mounted lights that cost as little as $150. They keep the price tag low, thanks to 3-D printing, which has long been used for mock-ups and prototyping but is rarely utilized for manufacturing high-end design objects. Victoria Slaker, vice president of industrial design at Ammunition, says the lights appeal to design-savvy customers interested in unique-looking objects. "They're a little bit of a statement in that sense; they're not purely functional."
—SANYA MANSOOR

TRANSPORTATION

EASY BREEZY BIKING

Gocycle GXi

Electric bikes are more popular than ever, but finding a place to store them, especially in smaller living spaces, is a big problem. The Gocycle GXi ($4,800) solves that by folding into a package about 2 ft. tall and 14 in. wide. But don't let the bike's small size fool you: the GXi is a comfy ride that can hit speeds of 20 m.p.h., with up to 50 miles of electric-assisted range. Spoke-free, side-mounted wheels make for quick tire changes, and a compact, removable battery makes it simple to recharge almost anywhere. And with an app that lets you customize how much power the bike delivers and when, you can expect a smooth experience no matter where you ride. —PATRICK LUCAS AUSTIN

HOUSEHOLD

COMPOSTING MADE EASY

Sepura

Each year, Americans generate roughly 40 million tons of food waste—the vast majority of which ends up not in compost piles but in landfills, or down the drain. "It's easier to throw things out in the sink than compost," says Victor Nicolov, the mind behind Sepura ($580), an eco-friendly disposal system. "No one wants to deal with odors or the pain of having to scrape a plate into a bin." The Sepura remedies the annoyance, turning your sink's garbage disposal into a composting system, and making the entire process mess-free. Whereas conventional disposals grind kitchen scraps, the Sepura separates and collects solids in a stink-free, 2.6-gal. bin beneath the sink. Once full, the odorless bin is easy to remove and empty into a compost pile or collection box. Sepura expects building developers to be its system's biggest customers, and plans to ship the first 2,000 preordered units in the early months of 2021. —J.R. SULLIVAN

PARENTING

ADVENTURES IN AUDIO

Yoto Player

Music does wonders for a child's brain development, especially when it comes to speech and reading. The problem is that tablets and smartphones—where music often resides—can do the opposite. That's why Ben Drury created the Yoto Player, a screenless, portable smart speaker that costs $100. Aimed at children ages 3 and up, the player uses kid-friendly audio cards, inserted into a slot, to play music and books. (It also connects to wi-fi, so parents can download extra content via the Yoto app.) Penguin Random House, HarperCollins and other major publishers have all come aboard, believing in Yoto's mission and broadening its content library. "When we show it to people with young kids, they instantly get it," says Drury. —J.R. SULLIVAN

BEAUTY

CLIMATE-SPECIFIC SKIN CARE

Pour Moi Climate-Smart 3-Step Rotating System

When Ulli Haslacher moved from her native Vienna to Southern California, the culture shock extended to her skin, as the hot and dry weather caused problems she'd never before encountered. That gave her an idea: skin-care products based not on particular issues, like acne or age spots, but on where you happen to live. Today, her company, Pour Moi, bases its formulas on climate, "the main factor that has an impact," Haslacher says. Users take a climate quiz on the company's website, which helps them find the right stuff—adjusted to account for factors like humidity, temperature, altitude and more—whether they're in dry desert heat or a frigid northern forest. One kit includes a balancer, a serum and two day creams. —CADY LANG

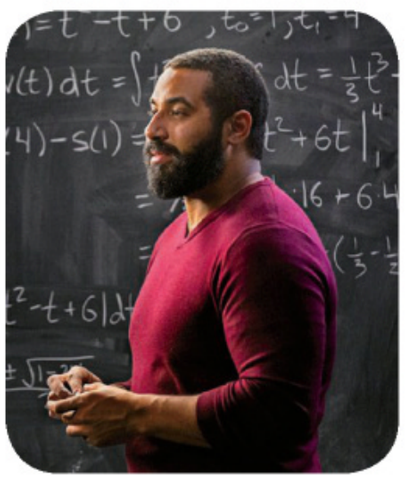
Pour Moi's skin-care line, which offers products with formulas fine-tuned for use in specific climates, is also vegan and cruelty-free

ARTIFICIAL INTELLIGENCE

A REFUGE FOR BEES

Beewise Beehome

An astonishing 40% of bees die every year as a result of disease, pesticides and climate change—in part because busy commercial beekeepers miss warning signs. That's where Beewise, an artificial-intelligence-powered hive, comes in. Using precision robotics, computer vision and AI, a Beehome—which costs $15 a month and might host 2 million bees—monitors the insects 24/7. When a hive is exposed to, say, parasites or experiences irregular temperatures, its internal systems respond immediately by applying pesticides, for example. Use of the smart technology can double pollination capacity and honey production, while decreasing colonies' mortality rate. "Not only do bees not die," says Saar Safra, Beewise's CEO. "They thrive."
—MÉLISSA GODIN



EDUCATION

AFFORDABLE HIGHER ED

Outlier.org

Even before COVID-19 made campuses physically risky, higher education faced a serious crisis, largely because of debt—total student-loan debt hit a staggering $1.5 trillion in 2019. Less expensive online learning is one solution, but the quality of web-based schools has been spotty at best. Enter Outlier. Built by the people behind the online-learning platform MasterClass, Outlier offers remote college courses for credit through the University of Pittsburgh. The courses—which include calculus, astronomy, psychology and statistics—are taught by top professors from schools like Yale and NYU, and are made with high production values not usually seen in online education.
—MATTHEW GAULT

WELLNESS

A FRIEND FOR LIFE

Tombot Jennie

Loneliness runs rampant among seniors suffering from dementia or pre-dementia. Tom Stevens, a 35-year tech-industry vet, saw it himself as the syndrome took hold of his mother. "I started wondering if there was a tech-based solution that could do some good," Stevens says. The result is the Tombot Jennie ($450), a hyperrealistic emotional-support robot that looks, feels and behaves much like a real puppy—minus the floor-wetting. Designed by Jim Henson's Creature Shop, the uncanny Jennie resembles a 15-lb. Lab puppy and includes dozens of internal sensors, allowing her to wag her tail when petted, respond to voice commands, and perk up and bark when asked if she wants a treat. Tombot plans to incorporate medical-alert capabilities into Jennie before shipping the robo-dog to the company's 5,000-person preorder list in 2022. —J.R. SULLIVAN

OUTDOORS

THE PORTABLE PURIFIER

CrazyCap

"When people want clean water, they reach for plastic bottles," says CrazyCap CEO Rakesh Guduru. "It's bad for your health and the environment." For those who want a more sustainable way to hydrate on the go, Guduru created a bottle cap that uses UVC light to sanitize water in just 60 seconds. The device has two modes, one to purify water from taps or public fountains, the other for streams and ponds—a potential godsend for hikers and campers accustomed to boiling their water or adding foul-tasting drops. The cap is rechargeable and compatible with most reusable bottles. Pricing for a cap-and-bottle pair starts at $69.99.
—SIMMONE SHAH

EXPERIMENTAL

HYDROGEN POWER FOR AIRPLANES

ZeroAvia

In 2019, passenger airlines emitted a record 915 million tons of CO_2 into the atmosphere. But bluer skies may be ahead. Case in point: ZeroAvia's zero-emission hydrogen-electric power train, which substitutes hydrogen fuel cells and electric motors for conventional fossil-fuel-powered engines. The tech was recently tested on a flight north of London, in which a small Piper M-Class six-seater took to the air. Founder and CEO Val Miftakhov, a pilot and a veteran in the sustainable-transportation industry, predicts that the tech will be able to power a 20-seat aircraft with a range of 500 miles within three years and a 100-passenger jet within 10.
—JESSE WILL

ENTERTAINMENT

A MUCH NEEDED ESCAPE

Nintendo *Animal Crossing: New Horizons*

When COVID-19 hijacked our lives earlier this year, many of us turned to video games for comfort. Few were more soothing than *Animal Crossing: New Horizons* ($59.99), which was released at the end of March, just as the pandemic took hold in the U.S., generating record profits for its publisher, Nintendo. Its secret weapon: simplicity. More than 26 million players cultivated small islands, tilling the land, designing houses and managing a community. In the game, friends can also drop by for a visit—a rare, if virtual, comfort in these days of social distancing. *Animal Crossing* doesn't just offer escapism, though: during the 2020 presidential race, Joe Biden's campaign offered yard signs for people's personal islands, and the President-elect even had a virtual campaign office that players could tour.
—MATTHEW GAULT

AR & VR

HELPING FRONTLINE WORKERS

Virti

Certain situations are almost impossible to train for. What do you do, say, when you nick an artery during surgery? Or spot a leak on an oil rig? In 2018, trauma surgeon Dr. Alex Young launched Virti, a training platform that drops workers into high-stress augmented and virtual reality scenarios, where they can practice responding and receive feedback. This year, the company found an important new use case: the pandemic. Virti's COVID-19 modules teach frontline workers around the world skills like the right way to wear personal protective equipment, administer treatment or ventilate a patient. A company study found that Virti's AR- and VR-based approach boosted knowledge retention by 230% compared with typical training.
—JAMIE DUCHARME

CONNECTIVITY

SUPERIOR STREAMING

Roland GO:LIVECAST

The pandemic has hastened the livestreaming era, turning our phones into bona fide broadcast stations. One problem: a lot of streams seem exceedingly amateurish. Enter the Roland GO:LIVECAST, which makes it easy to ensure that live broadcasts look polished. The control room in miniature ($250) features mic and instrument inputs, controls to switch between smartphone cameras and more. Once connected, the device can send your footage to Facebook, YouTube or wherever your viewers are. —JESSE WILL

EDUCATION

FUN WITH PHONICS

Duolingo ABC

Duolingo transformed our phones into language-learning devices. Now, with Duolingo ABC, the company is tackling a fresh challenge: childhood literacy. The new app is like an interactive Sesame Street *segment that teaches kids the basics of reading with fun and simple lessons. "By taking everything we know about how people learn—and especially what we know about how to keep learners motivated with gamification—we believe we can help make a dent in global illiteracy rates," says Laura Shih, the company's senior product manager.*
—MATTHEW GAULT

ILLUSTRATION BY CHRIS PHILPOT FOR TIME

WELLNESS

A FAST TRACK TO DREAMLAND

Hatch Restore

More than a third of Americans don't get enough sleep, according to a 2016 study from the U.S. Centers for Disease Control and Prevention—and it's safe to assume that the number has surged as the COVID-19 pandemic increases our stress levels. Tech companies have rolled out plenty of sleep gadgets over the past few years, most focused on tracking our sleep cycles rather than helping us drift off in the first place. Not so with the Hatch Restore ($129.95), an all-in-one bedside sleep aid and reading light that emits soothing white noise or guided meditations to help ease you toward dreamland. When it's time to wake up, the Restore glows with a simulated sunrise to gently nudge you awake; mellow alarm sounds are optional. —ALEX FITZPATRICK

CONSUMER ELECTRONICS

THE PHONE THAT DOUBLES AS A NOTEBOOK

Microsoft Surface Duo

Is it a phone or is it a notebook? In the case of Microsoft's Surface Duo, the answer is it's both. The dual-screen Android smartphone ($1,399) opens like a spiral binder, revealing a pair of screens. Unfold it and it's a digital notebook—drag items from one app to another, expand a single app to fill both screens (perfect for reading), or use a Surface Pen to get some writing done on one screen while you chat on the other. You can also fold the device back over itself and use the single screen as a traditional cell phone. The Surface Duo feels like a concept device but also a glimpse into the future of mobile computing: it won't replace your iPhone and its killer camera just yet, but it's easy to see how it one day might.
—PATRICK LUCAS AUSTIN

HOUSEHOLD

MEALS MADE EASY

Chef iQ Smart Cooker

The multicooking renaissance continues: after the Instant Pot brought food-prep machines to the masses, the Chef iQ breaks ground by upping the tech factor and making it dummy-proof. The wi-fi-enabled cooker features sensors, software and a screen to guide you through some 200 recipes, with more added every day. But the Chef iQ ($200) isn't just for newbies: an internal scale, variable pressure and release, and a "ferment" mode make the machine highly tweakable for gastro geeks. "We're still missing restaurants," says Chef iQ CEO Ralph Newhouse, "but people have been able to use this to get some seriously good results." —JESSE WILL

OUTDOORS

THE ULTIMATE COOLER

YETI V Series

Lamenting that the gorgeous stainless-steel ice chests of midcentury have been cost-engineered nearly out of existence, the team at Texas-based YETI decided to build their own, sparing no expense: the stainless-steel-clad YETI V Series, an $800 hard-sided cooler that weighs 35 lb. empty and can keep 46 cans of beer chilly for many, many days after your last tailgate guests have left. Its secret is vacuum-insulated panels, which keep the internal temperature lower for longer, yet allow for more space inside. "Over the course of several engineering builds, we probably destroyed over a hundred samples," says YETI manager Evan Goldberg. The result might just last for decades.
—JESSE WILL

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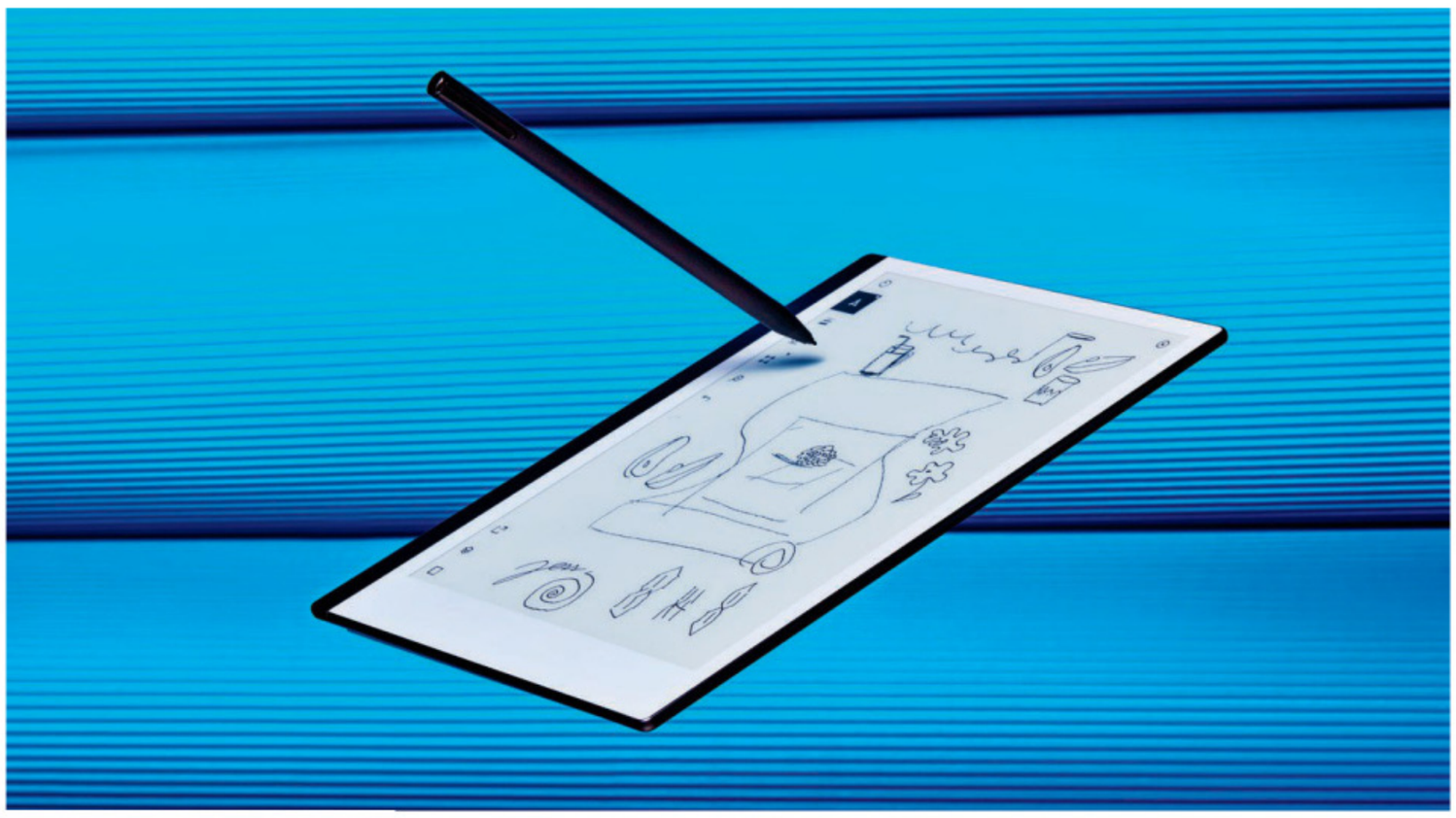

PRODUCTIVITY

A NEW TAKE ON NOTE-TAKING

reMarkable 2

In 2013, Magnus Wanberg noticed his colleagues were still jotting things down on paper, despite having laptops and smartphones. "Why hasn't anyone replaced paper with technology?" he wondered, a thought that led him to develop reMarkable Paper. Released in 2016 with a super-thin design that mimicked the feel of writing on paper, the tablet and note-taking device allowed users to convert their handwriting into digital text. Now Wanberg is back with an even more streamlined product: the reMarkable 2. At just 0.19 in. thick, the $399 device is 30% skinnier than its predecessor, with an extended battery life of up to two weeks for each charge. —MARIAH ESPADA

MEDICAL CARE

THE AIR CLEANSER

Carrier OptiClean

"Clean" rooms, in which air remains contained in a closed system for filtering rather than mixing with the rest of the facility, are in high demand at hospitals. Enter the Opti-Clean ($2,000–$4,000), a mobile air purifier built by Carrier that has two air-scrubbing functions. It can turn any room into a so-called negative air-pressure space to prevent potentially contaminated air from flowing out, pushing it instead through a high-efficiency HEPA filter before releasing it back into the room. Or, it can simply filter out pathogens from a room. So far, the company has 15,000 orders for the units from hospitals as well as schools, universities, offices and other buildings looking to provide safe indoor environments.
—ALICE PARK

CONNECTIVITY

FOLLOWING THE CONVERSATION

Owl Labs Meeting Owl Pro

Turns out robotics might be the answer to making virtual meetings feel more human. The Meeting Owl Pro is a 360-degree tabletop camera that automatically shifts focus to whomever is speaking in a room, training its lens and microphone on the speaker. In "hybrid" meetings, this means that virtual participants have a better feel for what's happening in a meeting or classroom or wherever others are gathered in real life. "It's able to follow the conversation just as if you were in the room," says Owl Labs co-founder Max Makeev. To date, its users include more than 50,000 companies and universities, like Stanford, as well as K-12 schools across the U.S. —JESSE WILL

The avian-inspired video-conferencing camera retails for $999

SOCIAL GOOD

THE PORTABLE HANDWASHING STATION

LIXIL Sato Tap

Handwashing is one of the most effective, and cheapest, ways to prevent the spread of COVID-19 and other viruses. But some 40% of the world's population lack running water and soap at home. The U.N. says it will take years of investment in water infrastructure to solve that problem. In the short term, Japan's LIXIL has created the SATO Tap, a portable, refillable handwashing station with a holder for soap. The gadget is expected to hit retail markets in early 2021 for between $3 and $6. LIXIL is already working with public and private partnerships to roll out 500,000 units to households in need around the world in the next year.
—CIARA NUGENT

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PRIORITY:YOU

PARENTING

THE E-ASSIST STROLLER

Cybex e-PRIAM

New parents need all the help they can get, especially when schlepping a young one around town. The sleek e-PRIAM ($1,400), by German stroller stalwart Cybex, gives parents an extra boost with an electric motor discreetly connected to the rear wheels. "It's really built for urban living," explains Dave Taylor, deputy CEO of Cybex America—be it for conquering San Francisco's hills, Boston's cobblestone streets or Miami's sandy beaches. Along with the uphill assist, the e-PRIAM features innovative handlebar smart sensors that detect downhill slopes and apply the brakes accordingly, ensuring the stroller is as safe as it is strain-saving. And with its 28-mile peak battery life, the e-PRIAM can cover serious ground between charges. —J.R. SULLIVAN

CONSUMER ELECTRONICS

A CLEANER CHARGE

Lexon Oblio

Cell phones can be covered with more than 17,000 bacterial gene copies—10 times as much bacteria as the average toilet seat, one study found. Oblio solves that problem and charges your device at the same time. The wireless charging station resembles a stylish vase and uses UVC light to sanitize your phone, killing 99% of the bacteria on its surface in just 20 minutes. The device ($80) has not yet been tested for effectiveness against COVID-19, but even so, it sold out soon after it became commercially available in the U.S. over the summer.—MADELEINE CARLISLE

EXPERIMENTAL

THE CLIMATE COP

Climate TRACE

For years, Silicon Valley companies have used artificial intelligence to make social media more addictive and streaming recommendations more predictive. "But very few people want to point these tools at the biggest problem we're facing: CO_2 emissions," says Gavin McCormick, a co-founder of Climate TRACE. The first-of-its-kind environmental analytics tool—backed by an international coalition that includes seven environmental nonprofits and former Vice President Al Gore—uses a combination of machine learning, infrared satellite imagery and advanced computer modeling to track polluters worldwide in real time. The information it collects, accessible through a data-rich online portal that is set for release in 2021, will help environmental organizations verify that governments around the globe are honoring pledges to cut greenhouse gases. The data will also enable companies to better judge their supply chain's cleanliness—and help the public stay informed too. —J.R. SULLIVAN

STYLE

FEEL THE MUSIC

CuteCircuit SoundShirt

The SoundShirt (£550) pledges to open up the world of music by allowing wearers who are deaf to experience songs using their sense of touch rather than hearing. The garment is outfitted with 30 miniature haptic motors that vibrate according to what is being played, allowing the wearer to "feel" the music in a visceral way. Lower frequencies from instruments like drums are felt in the lower abdomen, while sounds from instruments like flutes and violins vibrate across the chest, arms and shoulders. The shirt has been used by orchestras to translate performances of works by composers like Franz Schubert and Felix Mendelssohn into tactile experiences for deaf audiences. And there are applications beyond the concert hall. "If somebody happens to be deaf and wants to go dancing with their friends," says Francesca Rosella, a co-founder of wearable-tech brand CuteCircuit, which makes the SoundShirt, "they can just turn on the microphone and feel the beat." —PATRICK LUCAS AUSTIN

EDUCATION

A HIGH-TECH TUTOR

Van Robotics ABii

Robots fascinate Van Robotics CEO Laura Boccanfuso. But while getting her Ph.D. in computer science, she felt most were too expensive and technical for real-life applications. So she developed ABii, a robot tutor aimed at closing the math and reading proficiency gap for K-5 students. This is no mere toy: the 16-by-8-in. device is designed to work with teachers—and, increasingly, parents now that so many children are learning from home—with a curriculum created by certified educators. Its edge: using a camera to detect changes in student attention and optimizing its tutoring approach to resonate with individual learners. "Schools more than ever need individualized learning help," Boccanfuso says. "[They] don't have enough teachers in the classroom." Schools that buy ABii for $999 receive 30 student licenses that come with lesson plans that are updated regularly to meet national standards; the home version ($599) offers the same features with just three licenses. —NADIA SULEMAN

ACCESSIBILITY

MORE INCLUSIVE GAMING

Logitech Adaptive Gaming Kit

More than 46 million gamers in the U.S. live with a disability, and for some, standard controllers, mouses and keyboards can be challenging to operate. In 2018, Microsoft introduced its Adaptive Controller—a hub enabling users to plug in their preferred controls setup. Now Microsoft has partnered with Logitech to produce the Adaptive Gaming Kit. For $99, players get 10 buttons, two triggers, and hooks, pads, loops and other assorted gear that further enables them to customize their controllers. One reviewer, YouTuber Daniel O'Connor, described the kit as "honestly revolutionary."
—MATTHEW GAULT

MEDICAL CARE

A GENTLER EXAM

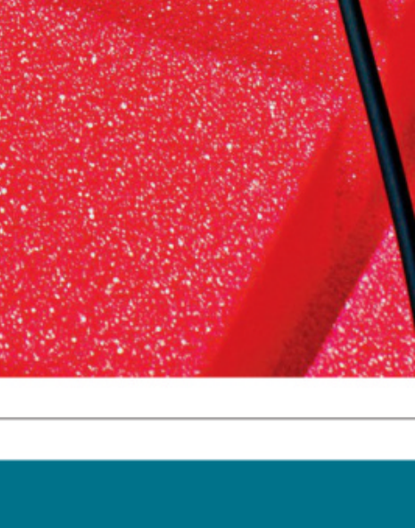
Nella NuSpec Reusable Vaginal Speculum by Ceek Women's Health

After seven rounds of in vitro fertilization, Fahti Khosrowshahi never wanted to hear the sound of a metal speculum clanking as it expanded and locked into place again. After finally starting her own family, she and a team of female designers set out to develop a better speculum for pelvic exams. The result is the Nella NuSpec from Ceek Women's Health. Made from medical-grade polymer, it's about as thin as the average tampon when closed, much smaller than most traditional devices. After insertion, two side wings expand into the less sensitive vaginal side walls, giving doctors visibility without compromising patient comfort. And the whole thing happens without a sound.
—JAMIE DUCHARME

FOOD & DRINK

A MINI HOME BREWERY

The Greater Good Fresh Brewing Co Pinter



Brewing your own beer seems like a great idea—at first. Then comes the ingredient measuring, the mess and, weeks later, the slightly off-tasting results. Here's a simpler solution: the Pinter, a home-brewing kit designed and built by London's Greater Good Fresh Brewing Co. The brightly colored, naturally carbonating unit (about $100) uses mail-order "Pinter Pack" kits that can include bottled lager, pilsner, IPA and cider mixes, among others—and some yeast to brew 10 pints of your liking in about a week. Animated videos help make the process nearly foolproof—even if you're under the influence of your last batch.
—JESSE WILL

TRANSPORTATION

A CLEANER CABIN

Dimer GermFalcon

Even before the pandemic heightened the health risks of air travel, the GermFalcon was preparing to create a cleaner, safer experience for passengers. Roughly the size of a beverage cart, the GermFalcon uses the same UVC disinfection systems as hospitals to sanitize every surface of an aircraft's interior before passengers board. While it has not yet been tested against COVID-19—a disease that spreads more frequently via the air than via infected surfaces—the GermFalcon has been effective against SARS and MERS, two other members of the coronavirus family. Dimer, the company that created the appliance, recently announced the next step in its flight path: a global partnership with Honeywell International Inc., and, soon, an updated version of the product. —SIMMONE SHAH

CONNECTIVITY

LINKING HEALTH CARE WORKERS

Vocera Smartbadge

At critical moments while caring for patients, doctors and nurses must drop what they're doing if they need to call a colleague. The Vocera Smartbadge is like an extra pair of hands. Worn like a necklace or pinned to scrubs, the device lets clinicians reach other team members using voice-activated commands. "You never have to stop what you're doing, reach in your pocket and pull out your phone, or take off your gloves to interact with another device," says Brent Lang, CEO of Vocera. Used by more than 100 health care facilities, the Smartbadge has proved especially useful during the COVID-19 pandemic because it allows clinicians to make calls without removing personal protective equipment. —MANDY OAKLANDER

HOUSEHOLD

A MACHINE THAT SELF-CLEANS

Narwal T10

Robot vacuums have been scooting around our living rooms and sucking up dust for years now. But robot mops have had a few kinks to work out—most notably, after a few deep cleans of your kitchen, you'll have to tidy up the robot mop yourself. The Narwal T10 ($549) takes its hygiene into its own hands with a self-cleaning charging station, where it washes and dries its own mopping pads with a refillable water tank. By swapping out the pads, you can also use the Narwal as a vacuum, though you'll have to map the space's layout on the device's companion app if you want to keep it off the carpet. —PATRICK LUCAS AUSTIN

MEDICAL CARE

A BEDSORE SOLUTION

Provizio SEM Scanner by Bruin Biometrics

Lying in bed for days or weeks is deceptively hard on the body. It places pressure on the skin and underlying tissues, and can result in injuries known as bedsores. Every year, these pressure wounds cost the U.S. medical system roughly $10 billion and contribute to complications like infections that kill about 60,000 Americans. The sores are also preventable—and the Provizio SEM Scanner is all about stopping them before they start. Nurses hold the scanner to a patient's skin and wait for feedback about moisture levels below the skin's surface. The data allows nurses to detect a sore up to five days earlier than they could with visual detection, when there's still time to stop it. The roughly 30 U.S. hospitals already using the device report treating up to 90% fewer bedsores than before.
—JAMIE DUCHARME

FITNESS

THE ANYWHERE WORKOUT

Within Supernatural

This subscription-based VR fitness app takes your workout beyond—way beyond—your four walls. Supernatural was launched in April by Within, a company specializing in immersive tech. Paired with the Oculus Quest or Quest 2 VR headsets, it transports users to places like the Gálapagos Islands, or a volcano in Ethiopia, or the surface of Mars. With the help of a virtual trainer, you strike down targets with your arms and squat your body into triangles on the screen, working up a fierce, but fun, sweat. "I don't know anyone who runs on a treadmill for entertainment," says Within co-founder and CEO Chris Milk. "We want you to feel a sense of awe." A Supernatural subscription costs $19 per month or $179 per year. —SEAN GREGORY

EXPERIMENTAL

FUTURISTIC FASHION

Vollebak Full Metal Jacket

Can a jacket fight a virus? The answer might be yes—especially if it's made of copper, an element proven to kill particles from viruses like influenza A and bacteria like *E. coli*. The Full Metal Jacket ($1,095), an innovative garment recently released by experimental clothing company Vollebak, may offer a glimpse into our sartorial future. About 65% of the lightweight jacket's total material is composed of microscopic copper fiber that, if laid out in a straight line, would cross 11 km (6.8 miles). Although the Full Metal Jacket isn't tested and wasn't intended for defense against the coronavirus, Vollebak co-founder Steve Tidball hopes it will nonetheless serve as inspiration for a day when more of our clothing is made of materials that can also protect us.
—JASON CIPRIANI

CONSUMER ELECTRONICS

A HIGH-IMPACT CAMERA

Sony a7C

Today's smartphones are getting pretty good at taking pictures, but they're still limited by the laws of physics. Better pictures typically require a bigger sensor, and there's only so much room in a phone. Unfortunately, cameras with big sensors tend to be pretty big themselves, making them inconvenient for everyday use. Not so with the Sony a7C, one of the smallest and lightest mirrorless cameras equipped with what's called a full-frame sensor—which is to say, a nice big one that can take really high-resolution pictures. Unlike most full-frame cameras, the a7C (starting at $1,799, body only) is small enough to drop in your bag for family outings, vacations or just daily photography and videography.
—ALEX FITZPATRICK

SUSTAINABILITY

ECO-FRIENDLY GROWTH

Pivot Bio PROVEN

For decades, agriculture has used synthetic nitrogen fertilizer to replenish nutrients in soil. But the chemical, used in half of all food production, can have devastating environmental and health effects. Berkeley, Calif.–based Pivot Bio is combatting that with the world's first microbial biofertilizer for cereal crops like wheat, rye, rice and barley. Dubbed PROVEN, the product replaces synthetic solutions with nitrogen-fixing microbes, which capture nitrogen from the air and convert it into a form that plants can use. For $20 per acre, compared to nearly $100 for existing fertilizers, farmers gain a more consistent harvest while eliminating 1 gigaton worth of carbon-dioxide-equivalent emissions. —MARIAH ESPADA

ACCESSIBILITY

A MORE COMFORTABLE SOCKET

Martin Bionics Socket-Less Socket

Thanks to microprocessors and robotics, artificial limbs have hit new heights of innovation. But the socket—the molded plastic piece that attaches prosthesis to person—hasn't made such major strides. Until now. The Socket-Less Socket replaces the often uncomfortable molded plastic fittings of more standard prostheses with a custom set of straps and bindings that can be tightened or loosened as needed. "It's the difference between wooden clogs and carbon-fiber shoes," says Martin Bionics founder Jay Martin. Traditional sockets offer one hour of comfort before they need to be removed to adjust padding, cool down or address areas of rubbing. The Socket-Less Socket stays comfy for more than three. Covered by Medicaid and most insurance carriers (depending on the policy, co-pays range from zero to about $2,000), the device costs about the same as the old plastic sockets it seeks to replace. —MARJORIE KORN

SOCIAL GOOD

WATER, WATER ANYWHERE

Skysource WEDEW

With climate change accelerating, H_2O is more precious than ever. This mobile generator produces fresh drinking water via an often overlooked source: air. Users dump discarded plant and animal materials, such as wood chips or nutshells, into the machine, which WEDEW heats up, releasing water vapor into the air in the process. Then the generator condenses the vapor into drinkable water. The whole system, which also includes a battery storage pod and a refrigeration module, fits into a single 40-ft. transport container. In 2020, WEDEW and the World Food Programme formed a partnership to bring the generator to a refugee camp in Uganda, in addition to communities in Tanzania. —PAULINA CACHERO

CONSUMER ELECTRONICS

UPGRADED CELL-PHONE SNAPS

MOON UltraLight

Despite years behind the lens, cinematographer Edward Madongorere always struggled to get quality shots on his phone at night—the lighting was never quite right. "Flash photography just doesn't work," he says. "We wanted to create a product that solves that problem, so you can essentially take light with you wherever you go." So Madongorere created MOON UltraLight, a sleek clip-on that attaches to any phone or laptop and casts just the right amount of light on a subject. The rechargeable device brightens or dims at the touch of a finger and adjusts between cool and warm light. And at the size of a small cherry, the $59 clip-on is much smaller and less intrusive than many other lighting tools on the market. —MADELEINE CARLISLE

HOME HEALTH

THE NBA BUBBLE BOOSTER

Oura Ring

This year, the NBA pulled off what few other sports leagues have been able to: a season without a single case of COVID-19 among players and staff inside its protective "bubble." One of the tools it used to maintain good health? The Oura Ring ($299). When slipped onto a finger, the sensor-packed wearable tracks heart rate, activity level, sleep—even body temperature. Oura's app uses that data to generate a "readiness" score—"a holistic picture of your health," says CEO Harpreet Singh Rai. In 2020, the NBA and Oura partnered; more than 2,000 people across the entire league ordered rings from the company, according to Oura, whose investors include former greats Shaquille O'Neal and Manu Ginóbili. Oura has also partnered with the WNBA and NASCAR, as well as the Las Vegas Sands casino company, to better monitor the health of athletes and employees. —MANDY OAKLANDER

ENTERTAINMENT

A (REALLY) FLAT-SCREEN TV

LG 65-in. GX OLED 4K TV (65GX)

Being stuck at home during quarantine can be a pain, but LG's new top-of-the-range GX OLED 4K TV ($2,600) might just make it a tad more bearable. The screen uses self-lit pixels instead of a standard LED backlight, creating brighter colors and deeper contrasts along with the sharp 4K detail that TV connoisseurs have come to expect. And then there's the profile: the TV is just 2 cm thick. As a result, the GX sits nearly flush with your wall. Yet it still boasts many of the convenient features seen in modern high-end televisions—including compatibility with Google Assistant and Alexa, allowing you to control your Internet of Things–enabled fridge or doorbell from the comfort of your couch. —BILLY PERRIGO

TRANSPORTATION

MAKES A BIKE AN E-BIKE

CLIP

If you're looking for an e-bike experience without ditching your favorite two-wheeler, the CLIP ($400) is for you. It's a friction-drive motor that easily attaches to the front wheel of your bike, its roller helping to rotate the wheel and thus speed you around faster than you can pedal. Though it weighs less than 10 lb., the CLIP can help riders reach speeds of up to 15 m.p.h., and its range, 10 to 15 miles, is long enough to get most commuters to and from the office, or weekend riders across town and back. It's also removable, so you can charge it under your desk or at your destination. —PATRICK LUCAS AUSTIN

OUTDOORS

SAFER CYCLING

Bontrager WaveCel

Americans suffered more than 60,000 cycling-related traumatic brain injuries in 2019—about 15,000 more than in all of football during the same period. While no bike helmet is guaranteed to prevent concussions, Bontrager's new WaveCel breaks ground with a collapsible cellular polymer, lined on the inside of the helmet, that adds an extra layer of protection to better absorb rotational forces on impact than traditional helmets do. In its annual ratings of a helmet's ability to reduce concussion risk, Virginia Tech gave the WaveCel its top mark: five stars. Prices range from $99 for the youth model to $299 for the WaveCel mountain-bike helmet. —SEAN GREGORY

ENTERTAINMENT

A REAL GAME CHANGER

Nvidia GeForce Now

Gaming isn't cheap. PlayStation and Xbox consoles cost hundreds of dollars, and a top-of-the-line gaming PC could set you back thousands. And games running on less specialized devices—like a phone or laptop—often do so slowly. GeForce Now, a new service from the chipmaker Nvidia, does the hard work of rendering graphics in the cloud, allowing users to stream high-end games like *Wolfenstein: Youngblood* and *Fortnite* at top speeds on their phones, tablets and non-gaming laptops. Andrew Fear, GeForce Now's senior product manager, likens the service to "a superfast gaming PC in the cloud." Since it launched in February, some 4 million people have signed up for the service—available for $4.99 a month—to play games on whatever device they happen to use, while maintaining speed and quality. —MATTHEW GAULT

FINANCE

A VIRTUAL ADVOCATE

FairShake

For many people, the process of seeking restitution after a big company rips them off or mistreats them is arduous and confusing. Some may choose not to submit their complaint. FairShake makes battling the big guys easy, with a free service that automates the process of filing an arbitration claim. Consumers fill out a questionnaire about their grievances and then track the status of their claims on FairShake's dashboard. If the matter isn't settled within the notice period (usually 30 days), FairShake, which has battled companies such as AT&T and PayPal and takes a 10% to 20% cut of successful claims, can initiate a legal complaint—with a real attorney if need be.
—PAULINA CACHERO

SOCIAL GOOD

A FASTER FIRST RESPONSE

Flare

When emergency medical care is required in the U.S., the first instinct is to call 911. But in Kenya, the only option is to call independent ambulance companies, some of which could be hours away. Enter Flare, an app that links callers in Kenya to a nationwide network of ambulance operators, dispatching the nearest one in the shortest time possible. For about $24 a year, subscribers have 24/7 access to more than 500 ambulances, enabling a rapid response. Flare's American co-founders, Maria Rabinovich and Caitlin Dolkart, plan to expand the program to other countries. "No matter where you are, or who you are, emergency help should be just minutes away," says Rabinovich. —ARYN BAKER

HOME HEALTH

HANDS-FREE BRUSHING

Willo

Created by a French dentist, Willo makes even the fanciest electric toothbrushes seem analog. Slip the nylon-bristle-lined silicon tray into your mouth, form a seal with your lips and turn it on. The $199 device—set for release in early 2021—pumps in water and specially formulated toothpaste, then pulls it from the tray through a tube into a sink. No rinsing required. The undulating bristles do the work of a team of toothbrushes, and the pumping action, which feels like a gum massage, is effective at removing plaque. Willo syncs with an app, so it knows how consistently you're brushing. Missed a day? It'll clean your pearly whites a little longer tomorrow.
—MARJORIE KORN

PARENTING

A MORE PORTABLE SEAT

Mifold Hifold Fit-and-Fold Highback Booster Seat

More and more children are going without booster seats in cars—to potentially devastating effects. "The single largest killer of American children is car crashes," says Jon Sumroy. "This is a public-health emergency." One contributing factor could be that kids' booster seats are too bulky to easily carry when using ride-sharing services like Uber and Lyft. Sumroy's company, Mifold, hopes to help reverse the trend with the Hifold ($160), a 10-lb. high-backed booster seat that has already been adopted by tens of thousands of families. Designed for kids from 33 to 100 lb., the Transformer-like device has adjustable head, torso and seat panels and collapses to roughly the size of a backpack for easy toting. "The world today is going through a personal transportation revolution," says Sumroy. It's time that booster seats caught up. —J.R. SULLIVAN

ILLUSTRATION BY CHRIS PHILPOT FOR TIME

ARTIFICIAL INTELLIGENCE

CLEARING THE AIRWAVES

Krisp

As millions adjust to remote work, unwanted background noises—yelling kids, roaring lawn mowers, barking dogs—have become the scourge of online meetings. Think of Krisp as your mute button for all that. The noise-canceling app, which costs $5 a month if you pay annually and is compatible with any videoconferencing software, uses machine learning to differentiate between your voice and background sounds, filtering out unwanted noises so your colleagues only hear you. —*MADELEINE CARLISLE*

WELLNESS

2020'S GO-TO DATA SOURCE

Johns Hopkins Coronavirus Resource Center

If you've ever consulted a COVID-19 hot-spot map or noted the infection figures on the cable news crawl, you may have the experts at Johns Hopkins University to thank. Its Coronavirus Resource Center is the de facto clearinghouse for pandemic stats. The center's data has been downloaded billions of times, helping governments to decide where to dispatch resources and when to reopen—and individuals to suss out the safety of hosting a socially distant backyard barbecue. —*MARJORIE KORN*

SUSTAINABILITY

THE FUTURE OF FARMING

FarmWise Titan FT-35

With its shunning of chemicals, organic farming can seem like a low-tech pursuit. But this weed-destroying robot, weighing in at about 3 tons, would like to have a word about that. The FarmWise Titan FT-35 is a driverless tractor that uses machine learning and computer vision, rather than herbicides, to eradicate weeds from farmers' fields. Traveling along a conventional tractor's path, the machine identifies both the planted crop—broccoli, lettuce, cauliflower and, soon, tomatoes—and the weeds disturbing its growth. In an instant, it reaches for the weed within 1 cm of precision and pulls it. Ten FT-35s are currently deployed in California and Arizona, with more to come in 2021. —JESSE WILL

CONSUMER ELECTRONICS

BETTER BUDS

Nuheara IQbuds² MAX

Wireless earbuds are increasingly capable of blocking the noise of the outside world while you listen to some tunes. But when you can't hear the person right in front of you, it'd be nice if they offered a little help. The IQbuds² MAX ($319) are on the case. They deliver on the audio front but also are the only wireless buds that feature both active noise cancellation and audio-processing technology capable of isolating human conversations, tuning out everything except the people or sounds you want to hear. Not only do they make it easier to hear your friends on the subway or at a noisy café, they can also help stem the debilitating effects of hearing loss—a condition that affects more than 466 million people worldwide. —PATRICK LUCAS AUSTIN

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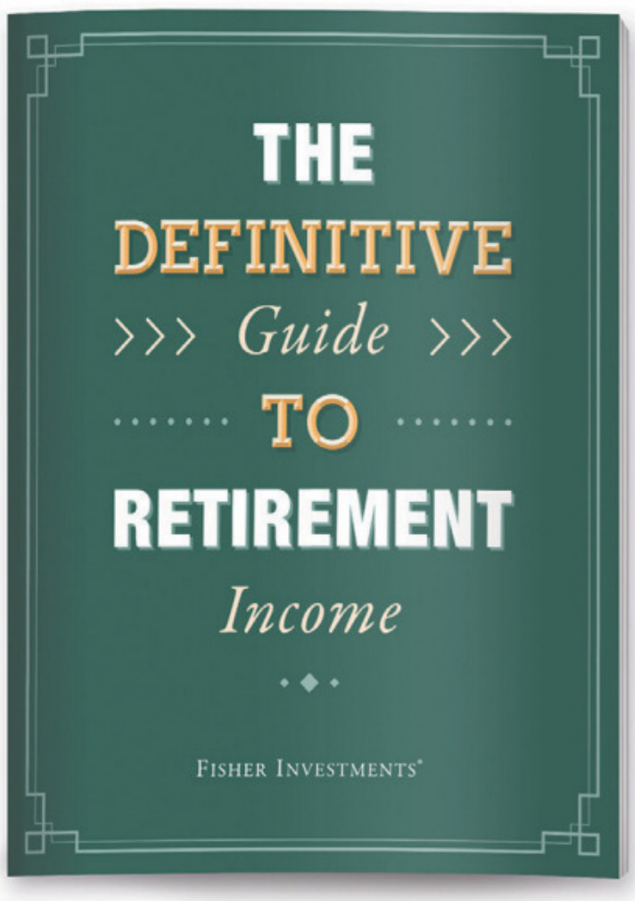

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STYLE

MASKS THAT DO MORE

Various

When it comes to stemming the spread of COVID-19, there's probably no more important item than the face mask, which, according to the CDC, prevents respiratory droplets from traveling into the air—and onto other people—when we sneeze, cough, talk or raise our voice. It's certainly the one consumer product that defines 2020. And while any number of variations could be considered a "best invention," three impressed us most. From top: B2 Mask by Breathe99 is a flexible, rubber-like face piece that holds two replaceable filters that remove about 99.6% of particles—and the mask is machine-washable ($59.99 mask; $7.99 filters). [MSK] by Petit Pli uses a fabric made of recycled plastic bottles woven into a patent-pending origami-like pattern to create a comfortable fit that works for every face ($38). RunMask by IAMRUNBOX uses the materials associated with athletic clothes—organic cotton, spandex and polyester—to create a mask that stays cool and comfortable during workouts ($39). —MARJORIE KORN

PRODUCTIVITY

THE ROLL-YOUR-OWN WHITEBOARD

3M Post-it Flex Write Surface

It's about time someone killed off the dry-erase board—the heavy, smudge-filled fixture of offices everywhere. The Post-it Flex Write Surface is just the dry-erase slayer we've been waiting for. Available in 3- to 50-ft. rolls, the Flex Write is effectively a whiteboard sticker that you can unroll, unpeel and slap wherever. "My son's calculus class got some and covered a whole wall," says Amy Hester, a 3M product developer. Thanks to some next-level office-supply science, the Flex Write Surface ($36 for 3 by 2 ft.) works with either dry-erase or permanent marker. "When you spray water on the permanent ink, you can actually see it lift and wash away," adds Hester. —J.R. SULLIVAN

SUSTAINABILITY

INDUSTRY, POWERED BY THE SUN

Heliogen HelioHeat

Creating the tons of steel and concrete we use to build our world requires a massive amount of heat—and most of it comes from burning dirty fossil fuels. HelioHeat cleans up that process by using the power of the sun. Here's how it works: A field of 100,000 motorized, computer-controlled mirrors concentrates sunlight in the direction of a 40-m-tall tower, "like a giant magnifying glass," says Heliogen founder Bill Gross. There, a hot spot gets up to 2,000°F, where the heat can be harnessed to melt steel or make cement or electricity. Future iterations of the tech, says Gross, could use the sunlight to create hydrogen to power zero-emission automobiles. —JESSE WILL

KID *of the* YEAR

TIME nickelodeon

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FITNESS

RECORD-BREAKING RUNNING SHOES

Nike Air Zoom Alphafly Next%

In 2019, Eliud Kipchoge ran 26.2 miles in 1:59:40, becoming the first human to run a sub-two-hour marathon. His not-so-secret weapon: a pair of high-tech kicks, the Nike Air Zoom Alphafly Next% ($275). The shoes have air-filled pods that help return some 90% of the energy an athlete exerts. "We think of the airbag almost as a battery—when your foot lands and pushes down on it, it stores that energy and then it returns more of it to you than we could do with foam," says Nike senior footwear innovator Carrie Dimoff.

—JESSE WILL

ARTIFICIAL INTELLIGENCE

A GUIDE TO CANCER TRIALS

TrialJectory

In 2020, cancer diagnoses will thrust nearly 2 million Americans into the often bewildering world of treatments and clinical trials. TrialJectory aims to help. The service uses AI to read through thousands of clinical trials and extract information about the sorts of patients the researchers are looking for. Its algorithm then matches users with the clinical trials—like the one a patient found for her Stage IV metastatic breast cancer—based on the users' responses to a series of questions about themselves and their disease progression. Since launching in 2018, TrialJectory's researchers have expanded the system to cover more types of cancer, adding lung cancers this summer. —ALEJANDRO DE LA GARZA

DESIGN

A MORE CONVENIENT CUP

Cuzen Matcha

There's a beautiful—if time-intensive—method of preparing traditional matcha, which involves whisking sieved ground tea with hot water using a heated whisk in a small bowl. Cuzen Matcha ($369) gives tea drinkers the high-art tea experience via a high-tech automated system. A grooved ceramic plate grinds premium tea leaves, dispenses them into a carafe and uses a magnetic mixer to create optimum foamy matcha. Sip it cold or at room temperature, add milk over ice for a matcha latte, or pour in hot water for a "matcha Americano." Founder Eijiro Tsukada wants to help people drink matcha with the same ease that they drink coffee, and offers a similarly convenient replacement for plastic bottled matcha. Cuzen Matcha works with a tea farm in Japan's Kagoshima prefecture to buy leaves that are only partially crushed—not ground—which makes for a smoother and fresher cuppa. —MARJORIE KORN

EDUCATION

LEARNING THROUGH PLAY

Kiri Toys

For centuries, children managed to entertain themselves with simple toys like wooden blocks—but times have changed. "Kids now spend between four and six hours per day in front of screens, which has only been exacerbated during COVID," says Nick Porfilio, CEO of Kiri Toys, which manufactures a new kind of toy block aimed at screen-exhausted families. Designed to teach a range of skills to kids ages 1 and up, each kit contains a set of tiles printed with images that interact with the Kiri block through a RFID chip. Place the block atop a tile's colorful, kid-friendly illustration, and it will pronounce the associated word, while giving off a pleasant glow. Kits are available for preorder starting at $99. —MATTHEW GAULT

TRANSPORTATION

READY FOR TAKEOFF

NASA Ingenuity Helicopter

The coolest helicopter on earth is actually nowhere near the Earth. It's nestled in the belly of NASA's Perseverance rover, set to land on Mars early next year. The little machine—dubbed Ingenuity—is equipped with two counter-rotating blades that spin at 2,400 revolutions per minute. That's a lot faster than earthly helicopter blades—and it has to be, since it takes a lot of muscle to get any purchase in Mars' thin air. Ingenuity is a prototype, intended to find an easier way to get from place to place on Mars. It's a job that rovers do slowly but a helicopter could do speedily and nimbly, climbing to elevations even the best Mars car could not reach. —JEFFREY KLUGER

ILLUSTRATION BY CHRIS PHILPOT FOR TIME

ENTERTAINMENT

A GAMING REVOLUTION

Sony PlayStation 5

Sony's new gaming console is all about small advancements that combine to create a revolutionary experience. At more than a foot tall and weighing in at just under 10 lb., the PlayStation 5 is among the largest video-game consoles ever made—Sony needed the room to support visually spectacular titles like Spider-Man: Miles Morales. *Games load almost instantaneously, thanks to a solid-state hard drive. The graphics processor is almost 10 times faster than that of the PS 4, which allows for beautiful visuals, and a new controller is full of haptic feedback sensors that add a new dimension to play. When a character walks on sand, players feel the grit in the controller; when Spider-Man grips a subway car, players feel the train's rumble. Add it up, and it just may be the most powerful video-game console we've ever seen.* —MATTHEW GAULT

HOME HEALTH

THE GERM TRAPPER

FEND by Sensory Cloud, Inc.

Every day, you inhale countless potentially infectious particles. If one gets past the mucus lining in your upper airway and enters the lungs, you could get sick. When you exhale respiratory particles, others are also put at risk. For more than a decade, Harvard aerosols expert David Edwards has been working on what he calls the nasal "equivalent to washing your hands" to reduce these risks. He thinks he's found it in FEND ($60), a drug-free salt- and calcium-based nasal mist that strengthens the mucus lining, helping it trap and flush out tiny pathogens. In a preliminary study, people who used FEND exhaled about 75% fewer aerosol particles than those who didn't, suggesting it could be a worthy addition to the disease-prevention arsenal, along with handwashing, masking and social distancing.
—JAMIE DUCHARME

ACCESSIBILITY

STEADIER POWER CHAIRS

LUCI

Power wheelchairs can be a lot more dangerous than they look. The devices, which weigh up to 400 lb., are prone to tips and collisions, sometimes resulting in serious injuries like broken bones. Barry Dean, a songwriter in Nashville, saw this firsthand when his daughter Katherine, who lives with cerebral palsy, suffered leg and arm injuries when her chair tipped over. So Dean and his engineer brother created LUCI ($8,445), a power-chair accessory that uses sensors to monitor the chair's environment. As riders steer their chair with a joystick, LUCI collects data that determines safe paths and modifies the chair's response, like slowing down before an unexpected drop-off or halting to prevent a collision. An associated app, the MyLUCI portal, allows users to track and share data such as their chair's charging status and location. The power-chair accessory will be available at mobility clinics in the U.S. in November. —PAULINA CACHERO

AR & VR

THE CORPORATE VR SOLUTION

Pico Interactive Neo 2 Eye VR headset

With built-in spatial audio speakers that enable a surround-sound-like experience and integrated cameras to map your environment, the Neo 2 Eye ($899) matches or exceeds other entertainment-oriented headsets in quality and performance. But that's where the similarities end. Unlike other headsets, the Neo 2 Eye, which is primarily meant for corporate use, features eye-tracking software that can detect where you're looking. That tech comes in handy for seeing exactly what part of a new product a customer is ogling or helping an employee learn a new skill—so it's no wonder that some of the headset's earliest adopters include companies like HTX Labs and Strivr, which develop virtual solutions for professional training. What's more, the headset has no pesky cables to deal with or sensors to set up to get started. That means users can move freely in their real-world space—without getting yanked back to reality. —PATRICK LUCAS AUSTIN

PARENTING

A CRIB THAT CALMS

Cradlewise Smart Crib

Roughly 60% of 6-month-olds fail to sleep through the night. Enter Cradlewise ($1,500), an AI-powered smart crib and bassinet. Most self-rocking cradles respond when a baby cries, but Cradlewise uses sensors to detect a child's first stirrings. Based on the baby's sleep schedule, the crib then determines whether to soothe them back to sleep with bouncing motions or to let them wake up.
—J.R. SULLIVAN

FINANCE

BANKING THE UNBANKED

Remitly Passbook

A bank account is key to financial security and success in the U.S. But for many immigrants, barriers to entry like Social Security numbers and steep fees put opening an account out of reach. Launched in February by the money-transfer provider Remitly, Passbook is an app that allows customers to open a bank account using a range of identification options, including an immigration ID or a passport, without any banking fees. Clients can also use the account, which comes with a Visa debit card, to transfer money to families abroad. For newcomers to the U.S., Passbook may be a financial stepping-stone.
—PAULINA CACHERO

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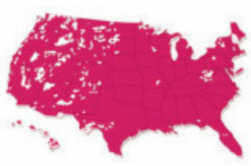

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TimeOff

THE 100 MUST-READ BOOKS OF 2020

PHOTOGRAPHS BY JUSTIN J WEE FOR TIME

THE 10 BEST FICTION BO

1. The Vanishing Half
BRIT BENNETT

Twin sisters Stella and Desiree Vignes are Black but could pass as white, and when one makes the decision to do so, she sets generations of Vignes women on a complicated new path.

2. Shuggie Bain
DOUGLAS STUART

In 1980s Glasgow, Shuggie is left to look after his struggling mother as she descends further into alcoholism, all while trying to make sense of his sexuality and place in the world.

3. The Mirror & the Light
HILARY MANTEL

The final installment in Mantel's masterly trilogy on Thomas Cromwell finds the adviser to the mercurial King Henry VIII finally facing up to the consequences of his scheming.

4. A Children's Bible
LYDIA MILLET

After a storm pummels their vacation home, a group of children decide to flee, and their adventure story gives way to a distressing narrative about the burdens placed on young people.

5. Homeland Elegies
AYAD AKHTAR

Akhtar employs details from his own life—his name, Pakistani heritage and more—to leave readers constantly questioning what is real as they consider what makes an American identity.

6. I Hold a Wolf by the Ears
LAURA VAN DEN BERG

Van den Berg's eerie short stories, each anchored by a woman who is slightly disconnected from her reality, offer glimpses of biting humor amid revelations of pain.

KEY

Fiction
- REALISTIC FICTION
- SHORT STORIES
- SUSPENSE + ALTERED WORLDS

Nonfiction
- HISTORY + POLITICS
- MEMOIR + ESSAYS
- SOCIETY + SCIENCE

Actress
ANNE ENRIGHT

A daughter attempts to untangle the past of her mother, a revered star of the stage and screen. Enright undercuts the glamour of postwar Hollywood with the darkness of 1970s Dublin winters to explore the ugly side of fame.

Afterlife
JULIA ALVAREZ

Retired and recently widowed, a woman is haunted by loss. But her life takes another dramatic turn when the pregnant, undocumented girlfriend of a Mexican laborer who works on a neighboring farm knocks on her door, in need of help.

Agency
WILLIAM GIBSON

Gibson's sequel to *The Peripheral* takes place in both the near future and a distant one, where all of what modern society fears—climate change, pandemics, wars over resources—has slowly wiped out 80% of humanity.

The City We Became
N.K. JEMISIN

New York City is under attack from the Enemy, a representation of white supremacy. Avatars for the five boroughs must bond together to fight, making their diversity their strength in the face of sinister forces.

OKS

7. *A Burning*
MEGHA MAJUMDAR

Moving between three voices—a Muslim woman wrongfully accused of terrorism, her conflicted alibi and the teacher who wants to seal her fate—Majumdar crafts a stunning portrait of modern-day tensions in India.

8. *Deacon King Kong*
JAMES MCBRIDE

After he shoots the local drug dealer in the face, a troubled deacon becomes the neighborhood's most-wanted—by police, local mobsters and the dealer himself in a narrative that explores masculinity and community.

9. *Where the Wild Ladies Are*
AOKO MATSUDA

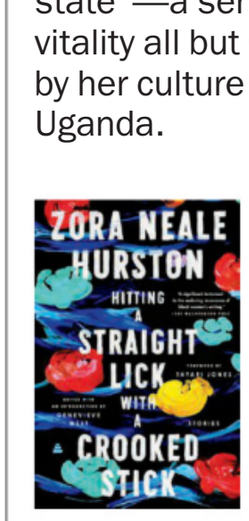
In these retellings of traditional Japanese ghost stories with a feminist twist, otherworldly situations meet the mundanity of everyday life.

10. *Breasts and Eggs*
MIEKO KAWAKAMI

The intertwined journeys of a woman, her sister and her niece—each contending with growing older—illuminate the struggles of contemporary womanhood in Japan and beyond.

Djinn Patrol on the Purple Line
DEEPA ANAPPARA

When a classmate goes missing from their neighborhood outside an unnamed city in India, 9-year-old Jai does what the police refuse to, even when bribed: he goes "detectiving" to find the boy.



A Girl Is a Body of Water
JENNIFER NANSUBUGA MAKUMBI

At 12 years old, Kirabo discovers that within her is a rare embodiment of women's "original state"—a sense of vitality all but smote by her culture in rural Uganda.

If I Had Your Face
FRANCES CHA

Cha alternates among the perspectives of four women in Seoul as they navigate romantic and financial crises, filial expectations, career aspirations and deeply held traumas, each in her own unique way.

Earthlings
SAYAKA MURATA

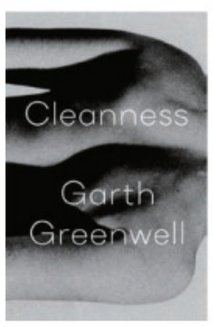
Natsuki feels so alienated by society that she believes she's from another planet—and when her cousin Yuu says he believes the same about himself, the pair embark on a rebellious path to break the chains of conformity.

Hitting a Straight Lick With a Crooked Stick
ZORA NEALE HURSTON

This new collection—published 60 years after Hurston's death—features eight "lost" stories set in Harlem, where she lived in the '20s and bonded with fellow luminaries.

Interior Chinatown
CHARLES YU

Yu explores Hollywood's racism against Asian Americans in his inventive novel, written in the form of a screenplay, about an actor who has had to suffer through various dreary supporting roles.

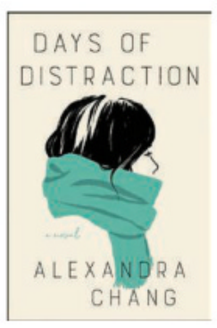


Cleanness
GARTH GREENWELL

A gay American teacher navigates life in the capital of Bulgaria, a place still unaccepting of the love he seeks. Greenwell precisely details the physicality and power at play in S&M and the questions that linger after abuse.

Crooked Hallelujah
KELLI JO FORD

Ford follows four generations of Cherokee women through decades of hardship, lingering on poignant moments to show how the family perseveres in a world that seems determined to destroy them.

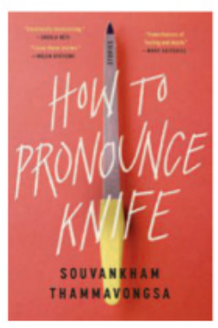


Days of Distraction
ALEXANDRA CHANG

Between an isolating cross-country move with her white boyfriend and a disappointing visit with her father in China, Jing Jing searches for a place where her identity isn't subsumed by someone else's.

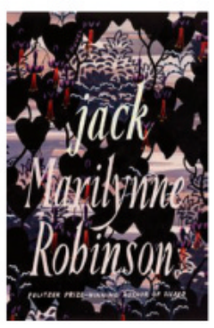
Followers
MEGAN ANGELO

A jaded blogger orchestrates her roommate's social media stardom. But soon a disaster that will come to be known as the Spill corrupts the Internet, leading to the creation of a society that even a celebrity seeks to escape.



How to Pronounce Knife
SOUVANKHAM THAMMAVONGSA

Thammavongsa was born to Laotian parents in a refugee camp in Thailand and raised in Canada, a path that informed her stories about the lives of 14 Laotian immigrants and those around them.

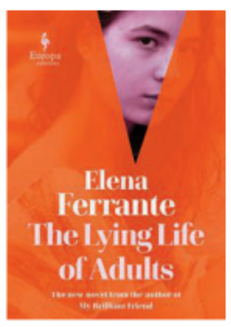


Jack
MARILYNNE ROBINSON

Readers of Robinson's *Gilead* series get to better know Jack: here he's aging, drinking and self-destructing in postwar St. Louis—and eventually falling in love with a Black schoolteacher named Della.

Kim Jiyoung, Born 1982
CHO NAM-JOO

In this novel, which helped inspire a new wave of feminism in South Korea, Kim Jiyoung wakes up each day as a different woman—and who she once was appears to be lost to her strange condition.

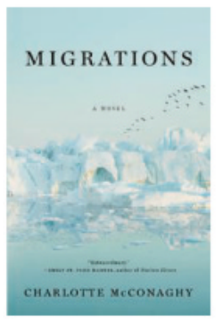


The Lying Life of Adults
ELENA FERRANTE

Young Giovanna is wounded when her father calls her ugly, comparing her to his sister, whom he despises. But when she finally meets her aunt, Giovanna begins to realize the truth is far more complicated.

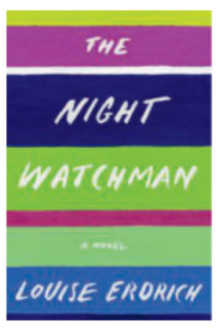
Memorial
BRYAN WASHINGTON

Right when Mike leaves for Japan to visit his dying father, his mother appears at the Houston home he shares with his boyfriend Benson. Facing new challenges, the men begin to re-examine their relationship.



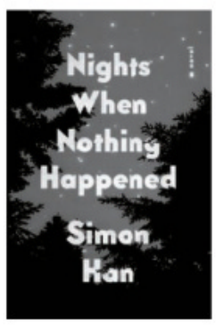
Migrations
CHARLOTTE MCCONAGHY

In *Migrations,* the sole remaining flock of Arctic terns is about to make its final descent from the Arctic to the Antarctic—and Franny Stone, a bird lover with a messy past, is determined to follow them.



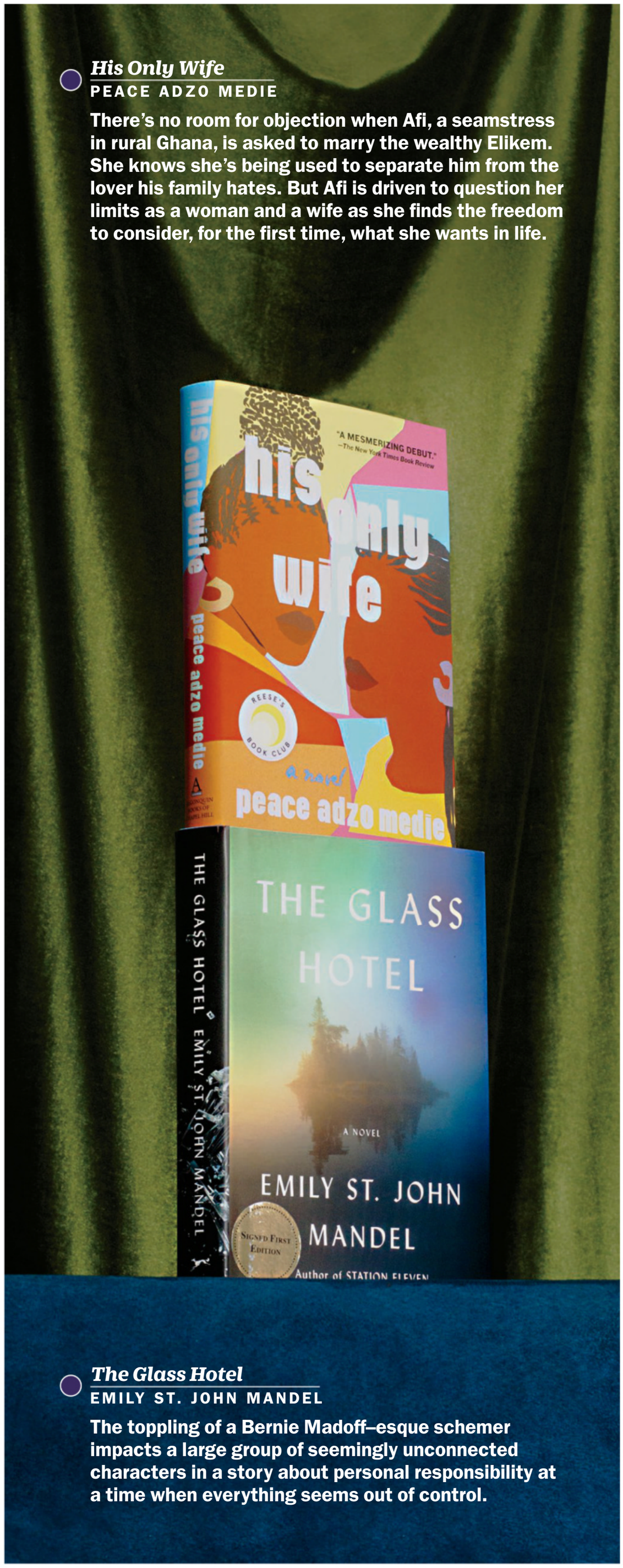
The Night Watchman
LOUISE ERDRICH

Erdrich takes inspiration from her grandfather's life, following a Chippewa man in the '50s who by night minds a factory and by day his tribe, which is threatened by a federal bill promising "emancipation."



Nights When Nothing Happened
SIMON HAN

The Chengs, a Chinese immigrant family in Texas, must consider the value of the American Dream when their fragile unity and tenuous status in the community are blown up after a terrible misunderstanding.

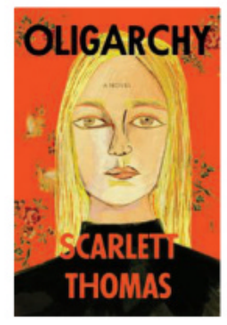


His Only Wife
PEACE ADZO MEDIE

There's no room for objection when Afi, a seamstress in rural Ghana, is asked to marry the wealthy Elikem. She knows she's being used to separate him from the lover his family hates. But Afi is driven to question her limits as a woman and a wife as she finds the freedom to consider, for the first time, what she wants in life.

The Glass Hotel
EMILY ST. JOHN MANDEL

The toppling of a Bernie Madoff–esque schemer impacts a large group of seemingly unconnected characters in a story about personal responsibility at a time when everything seems out of control.

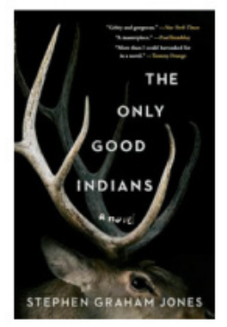


Oligarchy
SCARLETT THOMAS

Thomas invigorates her dark tale of an all-girls boarding school where fitting in means staying thin with splashes of humor, especially in protagonist Tash's biting observations about the ills of growing up in the age of Instagram.

One to Watch
KATE STAYMAN-LONDON

As dramatic and bingeable as the show it parodies, *One to Watch* follows a plus-size blogger who lambastes the lack of body diversity on a *Bachelorette*-like dating show—but then is offered the chance to star in it.



The Only Good Indians
STEPHEN GRAHAM JONES

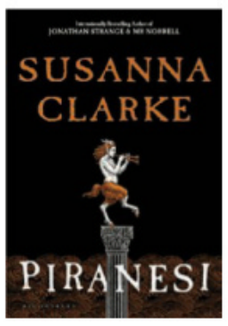
The horror veteran traces the violence that follows when the spirit of an elk—a mythical creature in the Blackfeet Nation tribe's tradition—takes its revenge on the members who killed it.

Party of Two
JASMINE GUILLORY

A Black lawyer and a white politician decide to keep their relationship private, which is all fun and secret dates until the media finds out. Guillory pushes past her rom-com premise to offer insightful reflections on interracial romance.

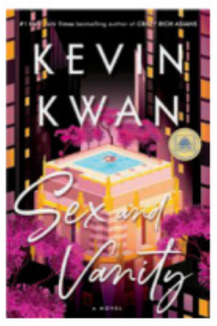
A Saint From Texas
EDMUND WHITE

In White's delightfully irreverent novel, Yvette and Yvonne are twins from Texas who, aside from their looks, share only their desire to leave—even after oil is discovered beneath their father's land.



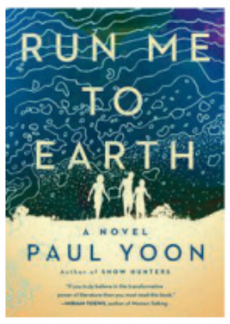
Piranesi
SUSANNA CLARKE

Piranesi is marooned in a seemingly limitless series of hallways, alone except for one other person he occasionally sees, yet content—until he begins to discover a sinister explanation for his strange circumstances.



Sex and Vanity
KEVIN KWAN

Lucie is torn between two suitors and two versions of a possible future. In Kwan's first novel since the *Crazy Rich Asians* series, his heroine is indeed insanely wealthy but soon discovers that money can't buy a sense of self.

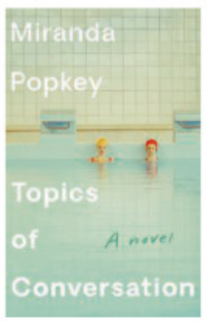


Run Me to Earth
PAUL YOON

In 1960s Laos, three orphaned teenagers spend their days helping a doctor deliver supplies to the wounded amid a civil war, risking their lives and spending their nights in a makeshift hospital, dreaming of being anywhere else.

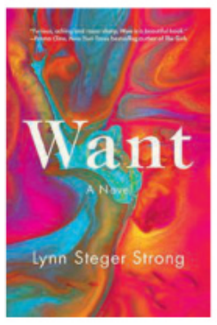
Tokyo Ueno Station
YU MIRI

Kazu, a migrant laborer, existed on the edges of society before he died—and there he remains, as a ghost reminiscing on his past. Yu sets one small life against the broad backdrop of 20th century Japanese history.



Topics of Conversation
MIRANDA POPKEY

Popkey offers a compelling new layer to the conversation about consent, following an unnamed narrator through 17 years of discussions with women who want to be dominated by men.



Want
LYNN STEGER STRONG

Strong highlights the anxieties that come with ambition in her story of a white 30-something mother facing bankruptcy and exhaustion, asking how seemingly attainable goals can lead to debilitating chaos.

Weather
JENNY OFFILL

Lizzie is growing increasingly obsessed with the impending doom of the planet due to climate change, discovering that even small stresses like babies who won't nap and dogs in need of care blend easily with existential dread.

We Ride Upon Sticks
QUAN BARRY

The 1989 Danvers High School field-hockey team is willing to do whatever it takes to play in the state finals, including drawing on their town's ties to the Salem witch trials and consulting dark magic.

Enter the Aardvark
JESSICA ANTHONY

A young Republican Congressman unexpectedly receives a giant taxidermied aardvark, which sets off a series of amusing events as the politician uncovers who sent the package and why.

Leave the World Behind
RUMAAN ALAM

In the midst of an unprecedented blackout in New York, two families attempt to navigate increasingly eerie events under one roof in Long Island, cut off from the rest of the world.

To Be a Man
NICOLE KRAUSS

Novelist Krauss explores gender, power and aging in her first collection of short stories, which reflects on what does—and does not—make men and women different.

Luster
RAVEN LEILANI

Edie, a 20-something in a slow-burning crisis, finds herself in an impossibly strange situation: moving in with her married boyfriend, his wife and their adopted daughter.

THE 10 BEST NONFICTION BOOKS

1. Caste
ISABEL WILKERSON

An instant classic, Wilkerson's latest book examines race in America through the prism of caste, comparing the rigid system that suppresses Black people in the U.S. to those that have ruled India and Nazi Germany.

2. Minor Feelings
CATHY PARK HONG

In piercing and lyrical essays, Hong unravels the quiet yet corrosive set of experiences and emotions so many Asian Americans endure in the face of racism, lending a voice to struggles that are often dismissed.

3. The Dragons, the Giant, the Women
WAYÉTU MOORE

In an unflinching look at survival, Moore traces her family's journey from fleeing Liberia on foot in the midst of civil war to their experiences, years later, as immigrants acclimating to life in Texas.

4. Memorial Drive
NATASHA TRETHEWEY

Trethewey was just 19 years old when her former stepfather killed her mother, and in combing through her tragic family history, she investigates the intersection of grief, legacy and identity.

5. The Dead Are Arising
LES PAYNE AND TAMARA PAYNE

This masterly biography of Malcolm X details the man behind the many myths, uncovering through vivid storytelling not only how the events of his life shaped him, but also how he shaped his country.

6. Vesper Flights
HELEN MACDONALD

Macdonald's stunning short essays address the "constant grief" that now overlays an appreciation of the natural world, using nature as a means of better understanding herself—and recognizing it as its own entity.

7. The Undocumented Americans
KARLA CORNEJO VILLAVICENCIO

Drawing on years of reporting, a DACA recipient examines the nuanced realities of the lives of undocumented immigrants, a group rarely afforded the chance to tell its own stories.

8. Having and Being Had
EULA BISS

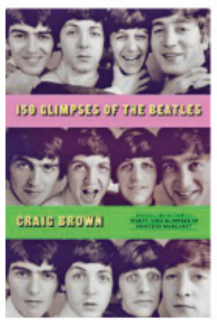
After purchasing her first home, Biss begins to dissect the ethics of capitalism. Her essay collection culminates in a powerful look at the ways in which we assign value to the people, places and things that make up our lives.

9. Hitler: Downfall
VOLKER ULLRICH

The second volume of Ullrich's biography of the dictator explains how the seeds of Hitler's downfall sprang from the very same qualities (obsession, fanaticism, deceit, refusal to listen to others) that helped him rise to power.

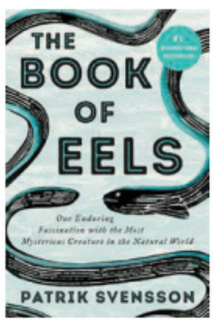
10. Just Us
CLAUDIA RANKINE

Rankine's lacerating condemnation of anti-Black racism across American society—from preschools to college campuses to police precincts—makes *Just Us* one of the most timely and vital texts on race to arrive this year.



150 Glimpses of the Beatles
CRAIG BROWN

Dozens of books about the Beatles are released every decade, but this one—which weaves oral histories, rote facts, dubious myths and Brown's own stories—should interest novices and experts alike.



The Book of Eels
PATRIK SVENSSON

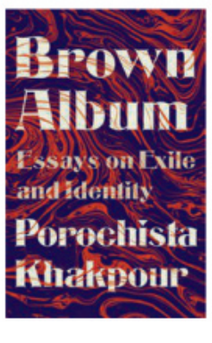
For centuries, eels have baffled the world's greatest minds: no scientist has seen them procreate or give birth. Svensson mines scientific history and explains his personal fascination with the creatures.

Conditional Citizens
LAILA LALAMI

What does it mean to be an American citizen? In striking prose, Lalami explores the U.S. history of questioning who belongs, revealing the gap between the dream and the reality of American life.

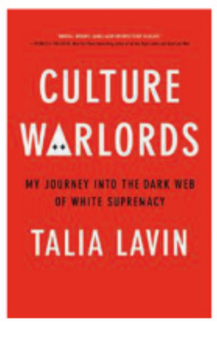
The Address Book
DEIRDRE MASK

Why do we have addresses? The question is at the center of Mask's book, which examines the origins of street names around the world and takes a damning look at the intersection of place, power and identity.



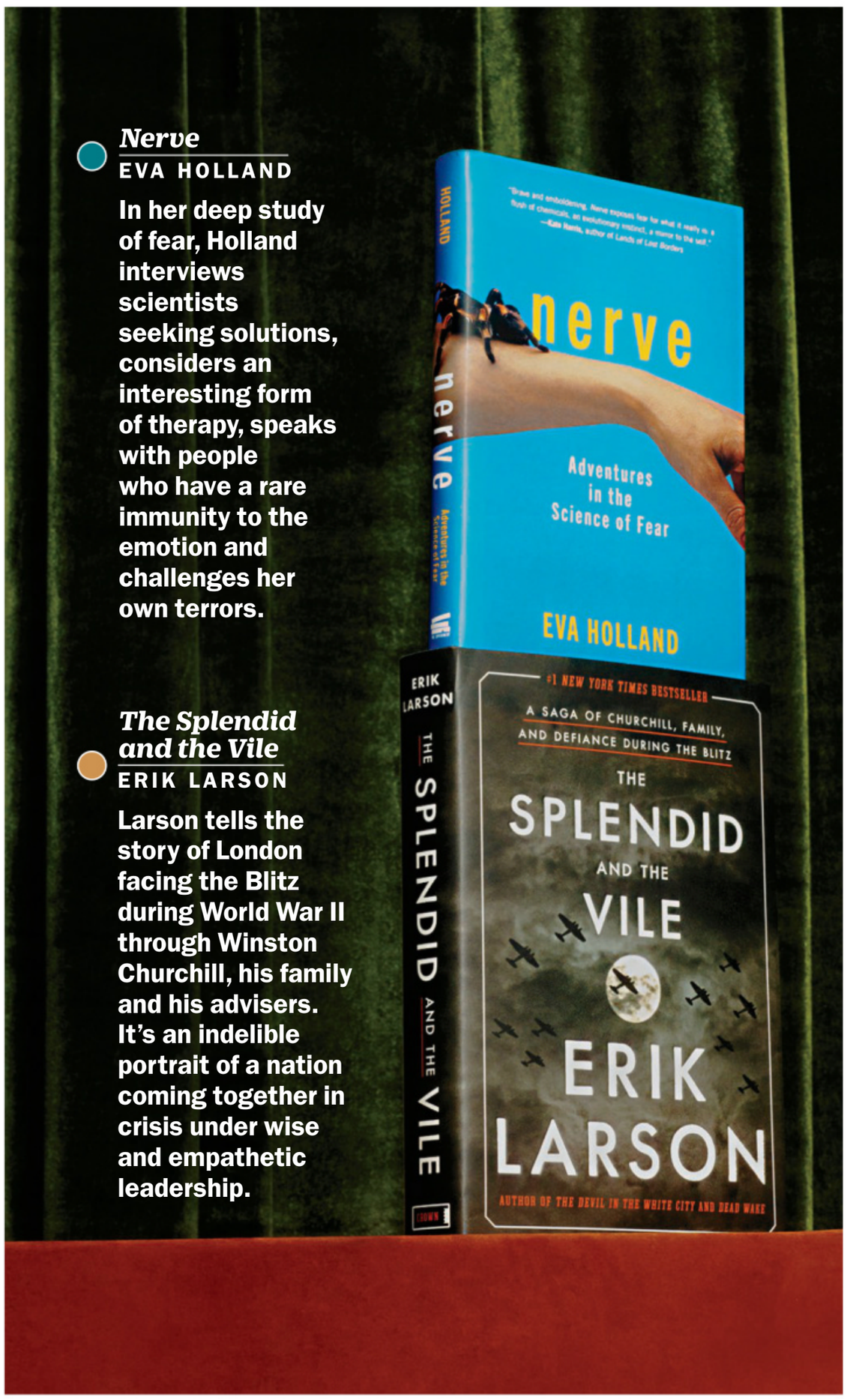
Brown Album
POROCHISTA KHAKPOUR

In this collection of essays, Khakpour uses sharp observations and biting wit to delve into what it means to be Iranian, Middle Eastern, an immigrant, a woman and, yes, brown in America.



Culture Warlords
TALIA LAVIN

Lavin, a proudly leftist journalist, posed as an "incel"—an involuntarily celibate man—in a chat room rife with misogyny for this book, a withering exposé of what extremists say when they think they're alone.

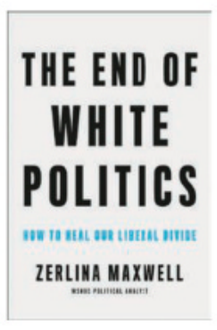


Begin Again
EDDIE S. GLAUDE JR.

In this powerful study, Princeton professor Glaude traces James Baldwin's complicated journey to understand racism in the U.S., and to wrestle with the hope and despair of the civil rights movement.

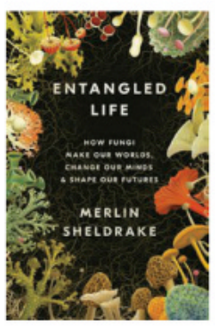
Can't Even
ANNE HELEN PETERSEN

Petersen expands her viral essay on millennial burnout in this book, which serves as an essential balm for young people blaming themselves for economic circumstances beyond their control.



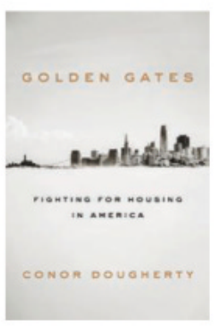
The End of White Politics
ZERLINA MAXWELL

Maxwell's witty, piercing book addresses everything from "Bernie bros" to the influence of billionaires as she argues that Democrats' failures are rooted in their unending focus on whiteness.



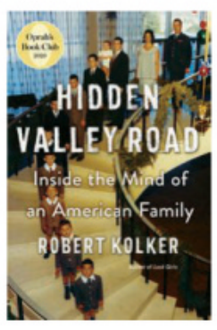
Entangled Life
MERLIN SHELDRAKE

Sheldrake's wondrous tour of fungi is eye-opening and full of details on why humans should consider these diverse and extraordinary life forms among the greatest of earth's marvels.



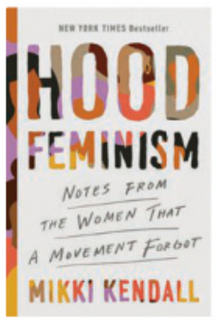
Golden Gates
CONOR DOUGHERTY

How can a city with so much prosperity see so many citizens struggle with homelessness? That is what Dougherty seeks to answer in his striking book about the history and politics of the dire housing shortage in San Francisco.



Hidden Valley Road
ROBERT KOLKER

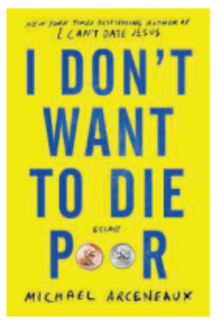
Crime journalist Kolker's best seller—about a seemingly picture-perfect American family in the 1960s—deftly depicts mental illness and violence as it interrogates the nature of schizophrenia.



Hood Feminism

MIKKI KENDALL

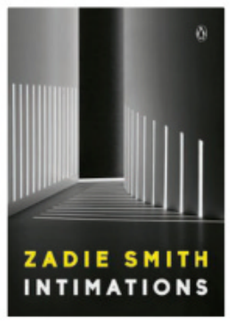
Kendall forces the mainstream feminist movement to examine its own privilege and whiteness, laying out the case for why feminists need to fight for basic needs and issues that more often plague women of color.



I Don't Want to Die Poor

MICHAEL ARCENEAUX

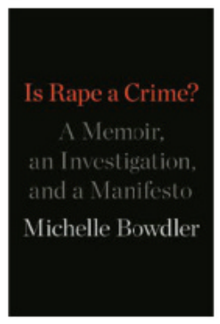
In unflinching essays on his finances (particularly his student loans), his dating life and his family, Arceneaux explores his sense of insecurity and the nature of American anxiety and hope.



Intimations

ZADIE SMITH

Smith's timely essay collection captures the COVID-19 pandemic with startling clarity. She focuses on how the coronavirus has amplified the social divides that already existed in her life, and in the country as a whole.



Is Rape a Crime?

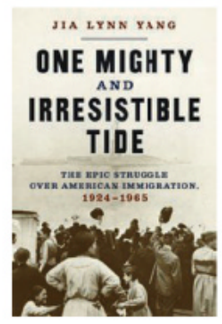
MICHELLE BOWDLER

After her sexual assault in 1984, Bowdler did what the justice system asked: completed a rape kit and spoke to the police, whom she never heard from again. Now she asks why the system fails so many survivors.

Let's Never Talk About This Again

SARA FAITH ALTERMAN

Alterman describes in mortifying and hilarious detail how with her father's Alzheimer's symptoms came some unwelcome revelations, including his secret career as a pornographic author.



One Mighty and Irresistible Tide

JIA LYNN YANG

In 1924, Congress enacted quotas on immigration that essentially blocked migrants from Southern and Eastern Europe, Africa and Asia. Yang chronicles the efforts of the leaders who fought back.

Wandering in Strange Lands

MORGAN JERKINS

Jerkins, whose family history in the U.S. can be traced from slavery through the Great Migration, travels the country to search for the larger traditions, myths and histories that shaped her ancestors and, now, her culture.

Vanguard

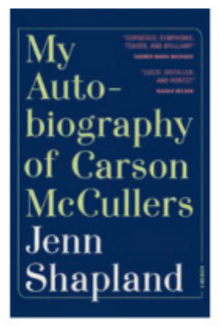
MARTHA S. JONES

Jones corrects popular history, asserting that the women's suffrage movement didn't start at Seneca Falls nor end in 1920. She traces Black women's work for decades longer on each end to secure the ability to widely, safely vote.

Big Friendship

AMINATOU SOW AND ANN FRIEDMAN

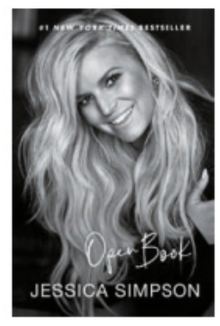
There are few guides on how to maintain a serious friendship. Sow and Friedman, long-distance best friends, argue that platonic bonds, like marriages, require nourishment—and they offer advice on how to love one another from afar.



My Autobiography of Carson McCullers

JENN SHAPLAND

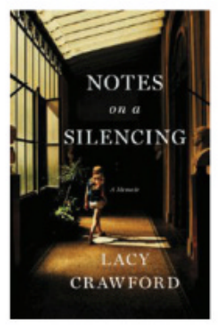
As an archive intern, Shapland uncovered love letters written between the late author Carson McCullers and a woman named Annemarie—a discovery that changed her life.



Open Book

JESSICA SIMPSON

Simpson's achingly honest book sets a new bar for celebrity memoirs, delving into the details behind tabloid stories like her high-profile romances while also laying out complex, harrowing truths about the costs of fame.



Notes on a Silencing

LACY CRAWFORD

Crawford's memoir about the assault she experienced at an elite boarding school is a devastating #MeToo story, a case study in the ways moneyed institutions protect their reputations at the expense of survivors.

The Pink Line

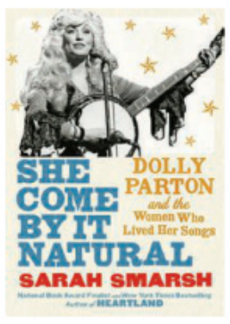
MARK GEVISSER

Gevisser introduces readers to the lives of LGBTQ people around the world in chapters that tell personal stories interwoven with analysis of how questions of LGBTQ identity have risen to prominence over the past 20 years.

The Purpose of Power

ALICIA GARZA

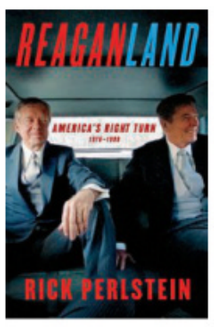
The Black Lives Matter co-founder traces the evolution of the movement and where it could go in a call to action that takes readers back through her first lessons in politics taught by her mom to the Ferguson uprising.



She Come By It Natural

SARAH SMARSH

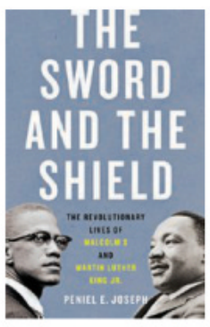
In her insightful essay collection, Smarsh gives Dolly Parton and working-class women in rural America their due for redefining womanhood even as their class and culture worked to keep them down.



Reaganland

RICK PERLSTEIN

The historian's latest picks up in the late '70s, when Ronald Reagan launched a bid for the presidency, tracing the strategic choices that laid the groundwork for Mitch McConnell, Donald Trump and their party as we know it today.



The Sword and the Shield

PENIEL E. JOSEPH

Joseph unpacks the intertwined impact of Malcolm X and Martin Luther King Jr., who wanted the same thing—equality for Black Americans—but approached that vision from different perspectives.

POETRY

African American Poetry

KEVIN YOUNG

In his breathtaking anthology, Young uncovers the work of lesser-known African-American poets deserving of a place in the canon, and features them alongside more famous figures.

Postcolonial Love Poem

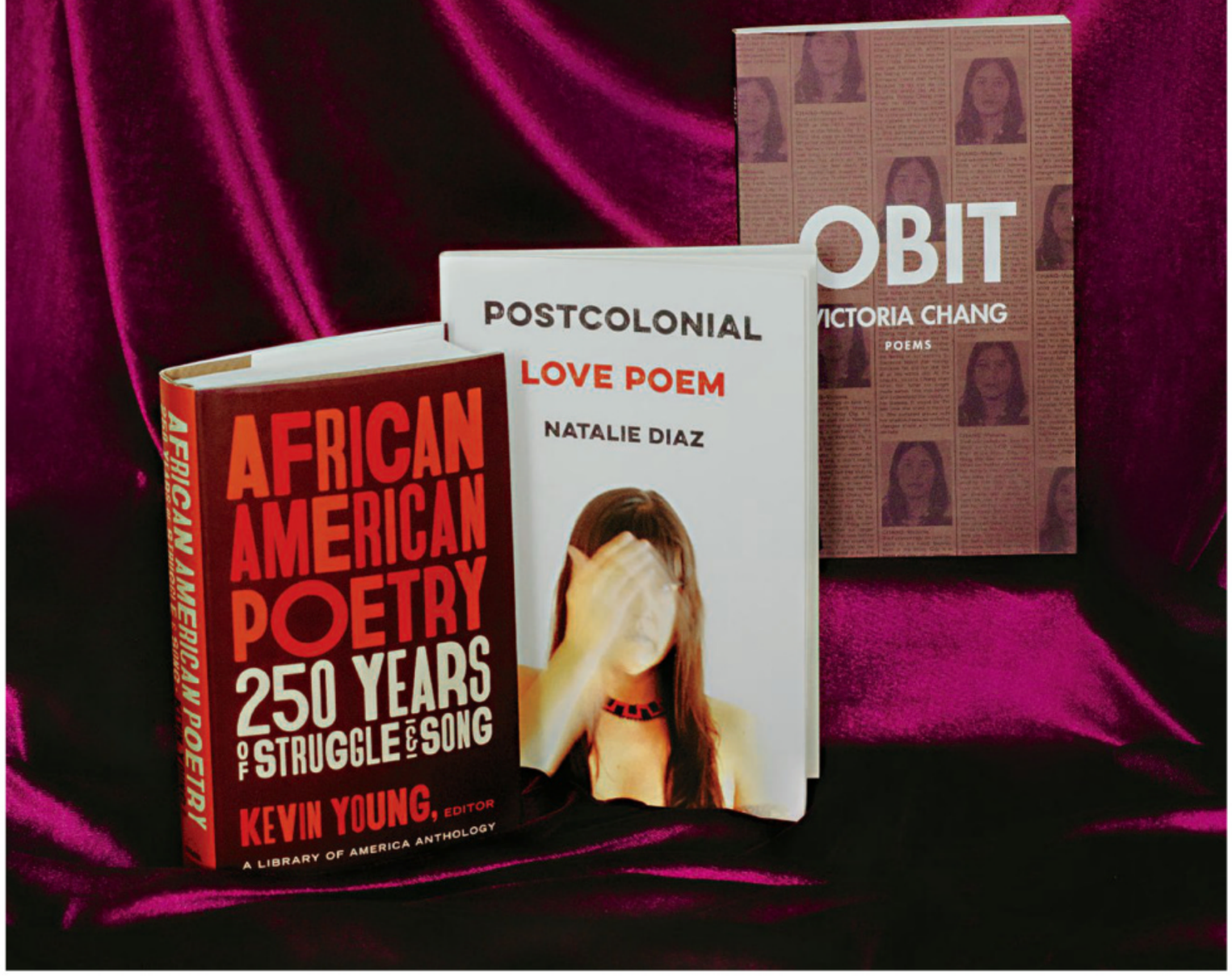
NATALIE DIAZ

A queer Aha Makav woman, Diaz explores in her tender collection the dissonance between the mysticism forced upon her by the white gaze and the miracle of her continued existence.

Obit

VICTORIA CHANG

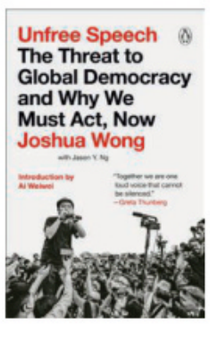
Although she initially balked at writing an obituary for her mother, Chang soon found herself writing eulogies for the small losses that preceded and followed her death, and captures the ache of grief in her visceral poetry.



Recollections of My Nonexistence

REBECCA SOLNIT

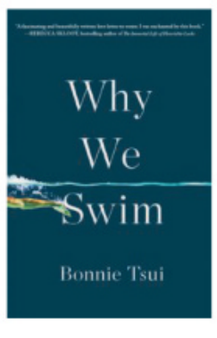
Solnit's memoir is at its most powerful when she shares personal stories that humanize feminist theory, painting a resonant and moving portrait of how challenging life can be in the female body.



Unfree Speech

JOSHUA WONG

Wong began organizing against Chinese government propaganda as a teenager, and is now one of the primary leaders of the Hong Kong protests for democracy. He charts his improbable rise from Marvel-loving teen to revolutionary.



Why We Swim

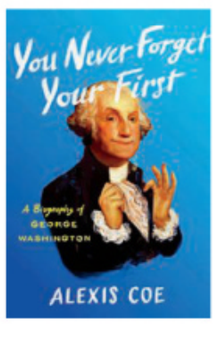
BONNIE TSUI

The journalist explores the human love of swimming in five sections: on survival, well-being, community, competition and flow, the state of oneness with water that people find when truly immersed in the rhythms of swimming.

Wow, No Thank You.

SAMANTHA IRBY

Irby's latest essay collection is joyfully self-deprecating as she considers things many are too guarded to discuss: the difficulty of making new friends, being addicted to your phone, hiding bills under your pillow.



You Never Forget Your First

ALEXIS COE

The first George Washington biography written by a woman in 40 years offers an enjoyable, accessible portrait, stripped of a common obsession in past biographies with the Founding Father's "manliness."

WRITING BY

—Andrew R. Chow, Eliana Dockterman, Mahita Gajanan, Annabel Gutterman, Suyin Haynes, Nate Hopper, Cady Lang and Lucas Wittmann

6 Questions

Riz Ahmed The actor, rapper and activist on finding inspiration in crisis, learning sign language and breaking up with Britain

This year, you released an album *(The Long Goodbye)*, co-created one film *(Mogul Mowgli)* and starred in another *(Sound of Metal)*. Is there a common thread tying these projects together? The idea of apocalyptic events being the start of something is quite powerful to me. All of these stories are about workaholics confronted with a crisis that forces them to re-evaluate what really matters. What are the things you leave or take with you at the end of a chapter? And these stories mirror our current situation. We are taught that being productive in the economy makes you a worthwhile human being. It's such a toxic idea. This moment has revealed how the ideology of individualism is a bit of a myth.

You've talked about wanting to be overwhelmed by your roles. Where does that impulse come from? Darius Marder, the director of *Sound of Metal,* and I jokingly refer to each other as gobblers: we want to gorge ourselves on experience. When I heard about this really intense and emotional acting role in his film that also involved learning sign language and how to play the drums, there was something so ludicrous about that idea that I wanted to jump in the deep end. It's how I like to approach life, I guess: just go all in. I think powerful creative cocktails often come from being deprived of the illusion of control. When you're forced to let go, something else is unleashed, something that is of you but also not.

What does that flow state feel like? It's being in your body and out of your head. In that sense, I think it has a lot in common with meditative states or athletic exercise. Some people experience it in prayer, in a good conversation with a friend or out dancing. It's that feeling of transcending the narrow self: when you open up that channel inside, then you can be carried forward by the great river. This is getting incredibly esoteric. Maybe we should get into some toilet humor or something. I'm British, man. I've exceeded my credits for being earnest for the week now.

'WHEN YOU'RE FORCED TO LET GO, SOMETHING ELSE IS UNLEASHED'

Has learning sign language shaped you as an artist? Jeremy Stone, my sign instructor, said there's a trope within the deaf community that hearing people are emotionally repressed because they hide behind words. As I learned to sign more and more, I saw where that was coming from. I found myself getting much more emotional talking through sign language than in English—because I was communicating with my whole body.

Your latest album is built around the metaphor of breaking up with a racist, xenophobic Britain. What stage of the grieving process are you currently in? Having written the record, I'm out the other side into self-love. I always thought that invitations to self-love as the start of liberation were cop-outs. But the more I learn about myself, the more I see how difficult it is to love or forgive anyone if you don't do the same to yourself. As we look externally for validation and self-worth, I think it can lead us down some really dangerous roads.

How has your perspective on the duty to represent your community changed over your career? Having that cross to bear as an artist can be a real gift and a curse. It's a gift because it's a privilege to know your work resonates beyond the work itself—that it might incrementally contribute toward stretching culture. But on the curse side, sometimes your awareness of that responsibility can negate your own personal curiosity. A journey I've been on recently is trying to draw on my very specific experiences—because if you create from a personal, honest place, you'll connect with all kinds of people.

—ANDREW R. CHOW

DAVID M. BENETT—GETTY IMAGES

Combating Covid-19

Taiwan Can Help

A democratic model of pandemic management

Through transparency, we win trust.
Through public-private partnerships, we build solidarity.
Recover better together. Health for all.

Support Taiwan's Participation in the World Health Organization.

Ministry of Foreign Affairs, ROC (Taiwan)

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SPEEDMASTER MOONWATCH

Originally introduced in 1957 for race-timing, the Speedmaster was first qualified by NASA in 1965 after surviving a series of the most punishing tests. Since that historic moment it has been trusted for the most daring missions beyond Earth, including the first moon landing in 1969 and the rescue of Apollo 13 one year later. Today, the Speedmaster remains essentially unchanged in its design and spirit, and we are looking forward to the next era of space exploration.

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